

## Industry Manufacturers Well Represented at American Chemical Society's New York Exposition



Exhibitors from the refrigeration, air-conditioning, and allied industries were well represented at the annual exposition of American Chemical Society in Grand Central Palace, New York City, Dec. 2 to 8. Here are some photographs of the exhibits, taken by the editor. Shown are Tagliabue Mfg. Co., Bakelite, Roots-Connersville Blower Corp., Johns-Manville Co., Minneapolis-Honeywell Regulator Co., International Nickel Co., General Electric Co., Matheson Co., Aluminum Co. of America, Taylor Instrument Co., Westinghouse Elec. & Mfg. Co., and Union Carbide & Carbon Co.



(1) When Nels Rosberg, California Consumers Co., was unable to be present to deliver his paper on "Pipe Line Operations and Applications," H. C. Guild of Vilter's New York City branch subbed for him. (2) E. W. Goodwin of the Procurement Division of U. S. Treasury Department tells engineers how to do contract business with the government. (3) Mr. Goodwin (left) was introduced by Harry Edwards, Union Carbide & Carbon Co., chairman of the session. (4) L. A. Tucker, chief of the Philadelphia section, accepts the A.S.R.E. Key awarded to P. L. Davidson for his paper on "New Aspects of Air Conditioning," given before the section, and published in the March issue of *Refrigerating Engineering*.



(1) H. C. Leopold, consulting engineer who designed the air-conditioning system for Gimbel-Saks department store, Philadelphia, explains the installation to A.S.R.E. members before taking them on an inspection tour. (2) Glenn Muffy calls attention to a potentially controversial point in the proposed standards for rating and testing air-conditioning equipment. (3) Unchallenged, Mr. Muffy continues his reading. (4) His explanation ended, Mr. Muffy invites criticism and suggestions. There were none.

# ELECTRIC REFRIGERATION NEWS

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## **U.S. Inconsistent In Tax Policy on Rebuilt Models**

**Reports from New York &  
West Coast Indicate  
Divergent Rulings**

DETROIT—Divergent policies are apparently being employed by U. S. Internal Revenue Department representatives in different parts of the country in the collection of the excise tax on rebuilt electric refrigerators and component parts, it is revealed by letters from a New York City concern and another from a Los Angeles firm who are engaged in the building of reconditioned units.

A letter from the Federal Refrigerator Corp., of New York City, published in the Nov. 27 issue of ELECTRIC REFRIGERATION NEWS, declared that:

"According to the opinion of the local Internal Revenue Administrator, the identity of any used refrigerator is changed by replacing any defective parts of a compressor, motor, expansion valve, etc., thereby making such rebuilt refrigerators taxable."

L. P. Roth of Refrigeration Service, Inc., upon reading this letter in the NEWS, wrote to the Federal Refrigerator Corp. outlining the rulings which he had obtained on this problem, and sent a copy to the editors of ELECTRIC REFRIGERATION NEWS, excerpts from which are as follows:

"The question of a tax on rebuilt refrigerator components arose here four or five months ago in connection with a 'drive' which the Internal Revenue Department was making on small refrigerator manufacturers and dealers in this city.

The representative in Los Angeles who has charge of this work evidently referred to a different ruling than your representative in New York, or else he interpreted it differently.

"He stated that if refrigerators or components in being repaired were disassembled, and the parts all placed in separate piles and then later the units reassembled, making use of parts taken at random from various piles, the resulting components have lost their identity and become, therefore, new components or refrigerators.

"If, on the other hand, each particular unit for repair is torn down separately and any new parts added and the unit then reassembled, it has not lost its identity. This definition to our

(Concluded on Page 2, Column 5)

## **Drygoods Men Will Discuss FHA & TVA**

NEW YORK CITY—What the Federal Housing Administration and Tennessee Valley Authority programs mean to the retailer of electrical appliances and other home furnishings will be one of the main subjects discussed at the National Retail Dry Goods Association convention to be held here Jan. 20 to 24, a preliminary report on the convention program reveals.

Two government officials have accepted invitations to speak at a general session at which this matter is to be discussed. They are A. O. Eberhart, special FHA representative; and David Lilenthal, director of the TVA.

It is probable that a plan will be presented at the convention whereby a financing corporation subsidiary to a retail department store can handle the financing of goods under the FHA modernization loan plan.

Another subject which will be discussed at the convention is the proposed rediscoun of dealer paper under the Electric Home & Farm Authority plan for the financing of appliance sales.

## **Wiswell Co. Moves to New, Larger Chicago Quarters**

CHICAGO—L. C. Wiswell & Co., distributor for Leonard refrigerators here, has moved into new headquarters at 221 E. Fullerton St., which, it is claimed, will be larger than that occupied by any other distributorship in the country.

With a floor space approximating 25,000 sq. ft., everything from storage room to offices will be on one level. There will also be a private switch track and loading platforms.

## **8 Major Cities Report Air-Conditioning Installations Ahead of 1934**

Reports of air-conditioning installations from eight more cities, two of them for 11 months, one for 10, and the rest for the first nine months of 1935, show substantial gains over 1934 marks in all but one instance.

The cities covered are Louisville and New York City, which reported installations for 11 months; St. Louis, which reported for 10 months; and Detroit, Jersey City, Pittsburgh, New Orleans, and San Antonio, which furnished totals for nine months.

Only in Jersey City was there a falling off from 1934 totals, and the decline in that city was slight.

### **LOUISVILLE**

Louisville installations for the period to Dec. 1 totaled 35, as compared to 31 for the whole of 1934, and a total of 50 for all years previous to 1935.

Largest individual gain this year was in the city's stores, 17 installations of this type being reported, against only five in all years past. This, it will be noted, is only one short of half the city's total for the 11 months period.

Another division to register a gain this year is the hotel field. Here three installations, totaling 46½ hp., were made, compared with only one installation of 5½ hp. previously. Total residential installations in the city are now 15, four being added this year to the number already in operation Jan. 1.

Other installations included two, for 45 hp., in the city's theaters; four, for 57½ hp., in offices, two, for 38 hp., in restaurants; and three, for 162½ hp., in the miscellaneous field.

Figures for Louisville were compiled with the cooperation of J. R. Ramage, director of industrial sales for Louisville Gas & Electric Co.

### **NEW YORK CITY**

Installations in New York City, including Manhattan and the Bronx only, totaled 204 in the first 11 months of the year, compared to 195 in the whole of 1934 and a total of 459 in all years previous to 1935.

Showing the biggest gain in the city are retail stores, with 59 installations, for a total of 1,917 hp., against 40 in all years prior to this. Restaurants also reported high on the list, with 63 installations this year, compared with 102 at the start of the year.

Eighteen theaters were conditioned this year, for a total of 2,010 hp., while 31 offices throughout the city were equipped with systems totaling 285 hp. A complete office building in the city was also conditioned during the year, the installation totaling 320 hp.

Residential installations totaled only four, to bring the city's mark to the present to 33. Two barber shops installed systems totaling 17 hp., first of their type to be recorded here.

Although it does no merchandising, New York Edison Co. assisted dealers in selling air-conditioning equipment through advertising in local trade and financial papers, magazines, daily newspapers, and direct mail, in addition to having several air-conditioning representatives on its staff.

The company issued two booklets, "Fresh Air For You," one for commercial establishments and the other for restaurants, cafeterias, night clubs, and other business houses, showing photos of actual installations, with letters and data furnished by satisfied users.

## **Fedders Adds to Plant & Opens New Branch**

BUFFALO—Fedders Mfg. Co. has purchased 120 ft. of frontage and the building at 3 Tonawanda St., adjoining the Fedders plant, from the Buffalo General Electric Co., for the purpose of expanding its plant facilities.

The Fedders company has also opened an additional factory branch sales office in Atlanta, Ga., in charge of Carlton Ohleiser.

At a recent meeting of the Fedders board of directors, a dividend of 37½ cents was declared, payable Jan. 2 to stockholders of record Dec. 20. This compares with a quarterly distribution of 25 cents made Oct. 10. Also at the meeting T. C. Fedders, vice president, was appointed general manager.

Wages of all employees earning less than \$50 a week will be advanced 5 per cent, effective Jan. 2, the directors announced. Average employment during November was 763 persons, a gain of 45 per cent over last year.

THREE DOLLARS PER YEAR  
TEN CENTS PER COPY

## **Boulware Elected Vice President Of Carrier**

NEWARK—Lemuel R. Boulware, formerly general sales manager of the Easy Washing Machine Co., has been elected a director, vice president, and general manager of Carrier Engineering Corp., and will assume his new duties Jan. 1 with headquarters here.

Mr. Boulware is a native of Kentucky and a graduate of the University of Wisconsin. After war service as a captain of infantry, he became assistant general sales manager of the Consolidated Press, Hastings, Mich. This company was purchased by the E. W. Bliss Co. and Mr. Boulware continued in its employ until 1920. He then joined the H. B. Sherman Co. of Battle Creek, Mich., manufacturer of small motors, plumbing goods, and electrical equipment where he remained for five years.

In 1925 Mr. Boulware resigned to become assistant sales manager of the Easy Washing Machine Co. and a year later was made general sales manager. Mr. Boulware leaves his former connection at the close of the biggest year in the company's history.

## **Refrigerant Issue Up Again at Hearing**

NEW YORK CITY—Further protest was sounded against the proposed refrigeration code of New York City as being too restrictive with respect to sulphur dioxide and methyl chloride at the third hearing on the proposed ordinance held last Wednesday before the Board of Hazardous Trades.

F. A. Eustis, treasurer of the Virginia Smelting Co., submitted figures from the city medical examiner's office, showing but three deaths from sulphur dioxide in 17 years.

In addition, the company sponsored a three-piece direct mail campaign, and newspaper and billboard advertising, calling attention of the public to the display, and inviting them to call on its engineers for technical advice, if needed.

Members of the sales engineering staff called on prospects as soon as they were uncovered, and assisted distributors and dealers in building their retail departments to maximum efficiency. Branch stores of the utility company were conditioned, as an aid in acquainting customers with its advantages.

Total kilowatt load added during the 10-month period, says Mr. Michel, is in excess of four times that added during the corresponding period of 1934, while the total number of installations is 25 per cent ahead of the same months last year. These results, he adds, were accomplished in spite of a comparatively cool June and July, and an extremely short hot season.

The cool weather reflected itself more in altering the average size of installations than in anything else, Mr. Michel says. During 1934, 29 installations were recorded of ½ hp. In the first 10 months of 1935, only 22 such installations were made.

During 1934, 65 installations were made of a size larger than ½ hp., but not over 3 hp. In the first 10 months of this year, 76 installations were made in this group.

In the higher brackets, Mr. Michel's

(Continued on Page 2, Column 3)

WASHINGTON, D. C.—The Rural Electrification Administration will finance the wiring of houses and other farm buildings in areas where rural line construction is making electricity available, Administrator Morris L. Cooke has announced.

Action is designed to remove one of the biggest barriers to rapid increase in rural electrification—inadequate financing facilities.

Under the present plan, REA will finance the construction and wiring of rural lines, and EH&FA will finance purchase of major electric appliances and equipment for use on these lines.

Maximum terms under which the authority will purchase conditional

(Continued on Page 2, Column 3)

## **REA to Finance Wiring For Farms; EH&FA Terms Are Set**

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Maximum terms under which the authority will purchase conditional

(Continued on Page 2, Column 3)

## **Gibson Distributors Get Advance View of '36 Line**

NEW YORK CITY—The 1936 line of Gibson refrigerators was shown to executives and distributors of Gibson Electric Refrigerator Corp., Greenville, Mich., at a special preview meeting in Hotel Commodore here recently.

In addition to distributors from this country, representatives from Denmark, Sweden, Finland, Argentina, Brazil, Uruguay, and Chile attended.

Coincident with the meeting, Gibson officials announced the appointment of George H. Kiley, formerly eastern district sales manager for Grunow, as Gibson sales manager for the New England states and northern New York state territory.

## **Grunow Names Agency For Advertising**

CHICAGO—Roche, Williams & Cunningham, Inc., has been appointed new advertising agency for Grunow electric refrigerators and radios, officials of General Household Utilities Co. announce.

## **S-W Distributors Preview '36 Line Of Refrigerators**

### **Cabinet Styling & Added Features to Mark New Models**

By George F. Taubeneck

CHICAGO—Coming from 52 distributing points located in every sector of the United States, 152 men whose business is the distribution of Stewart-Warner refrigerators and radios spent most of last week here at the Stewart-Warner factory—leaving behind them orders for more refrigerators than Stewart-Warner has ever sold in any previous entire year.

In addition to previewing the 1936 line of refrigerators—complete information and specifications on which will be available Jan. 15—the distributors attended two short formal meetings, and engaged in informal discussion of local merchandising problems with members of the Stewart-Warner executive staff.

General Sales Manager John F. Ditzell opened the formal meetings at the Drake hotel by analyzing the 1935 radio sales records of the various distributorships, and commenting on the present national situation in radio retailing. He introduced S. H. Rogovin, who presented two new radio models which will be added to the present Stewart-Warner line.

After a short recess, during which the distributors examined these new models, Charles D'Olive drew the curtain on the 1936 Stewart-Warner refrigerators.

Convenience features in the arrangement of the food compartment have been elaborately developed in this new line. Cabinets are of vaulted construction (sides and top are of one piece—a solid, unjointed housing of welded steel for the food compartment), and

(Concluded on Page 2, Column 2)

## **Nema Sues New York Electrical Union**

NEW YORK CITY—National Electrical Manufacturers Association and 14 of its member companies have filed suit, asking heavy damages, against the New York union, Local No. 3, of the International Brotherhood of Electrical Workers, in U. S. District Court here, charging the former with conspiring to ruin their business.

The suit is the outgrowth of differences between Nema companies and the union over installation of equipment in the New York area.

In the complaint filed by Nema and its member companies, the union is charged with conspiracy in restraint of trade and with injuring the plaintiffs' business in various ways, including coercion of New York City property owners, builders, architects, and contractors, through fear of strikes and boycotts, to refrain from

(Continued on Page 2, Column 1)

## **Crosley Names Outlets In St. Louis, Kansas City**

ST. LOUIS—Electric Lamp & Supply Co. of this city has been appointed distributor for Crosley Radio Corp. products here, reports Don Crosby, district manager for the Crosley Radio Corp. Herman Hollander is president of the distributing firm.

Mr. Crosby also reports that the American Electric Co., Crosley distributor in St. Joseph, Mo., will take over the distribution of Crosley electric refrigerators and radios in Kansas City. The branch office of the distributorship at 1928 Grand Ave., Kansas City, will be in charge of George Hayden.

## **5,000 Counter Ice Cream Freezers Now in Use**

CHICAGO—There are now 5,000 counter-type ice cream freezers installed in this country, C. S. Clark, secretary-treasurer of the Counter Freezer Association, reported recently.

During 1935, manufacturers who are members of the Counter Freezer Association sold more than 1,000 units. This represents an increase of 50 per cent over 1934 sales by these manufacturers, Mr. Clark declares.

## Makers of Electrical Equipment Institute Suit Against Union

(Concluded from Page 1, Column 5) buying electrical equipment manufactured by any of the plaintiffs.

The court is asked to grant temporary and permanent injunctions against the union and its officers.

None of the members of the New York local are employed in the factories involved, and the complaint points out that this is not a suit between employers and employees over working conditions.

Nema factories now employ both union and non-union workers, and one of the alleged purposes of the conspiracy charged against the New York local is to compel all wiring or assembling of electrical equipment installed in the metropolitan area to be done by union men.

Welfare of the manufacturers, as well as of their employees, is dependent upon the freedom of employers to carry on their business without hindrance and molestation, the plaintiff companies assert.

In notifying member companies of the suit, W. J. Donald, Nema managing director, describes the action as "a battle for industrial liberty," of interest not only to the electrical trade, but to all industry and the consuming public as well.

"The National Electrical Manufacturers Association," reads the statement, "believes that the public interest is best served by maintaining freedom of distribution and installation of electrical products."

"It believes that a manufacturer has the right to sell his own products to whom he chooses. It believes that a manufacturer has a responsibility for the satisfactory performance of his products. Where the proper installation of such products is necessary to insure satisfaction, it believes that it is contrary to public interest for any group or organization to seek to impose arbitrary or artificial restrictions upon the exercise of that right by the manufacturer or the consumer."

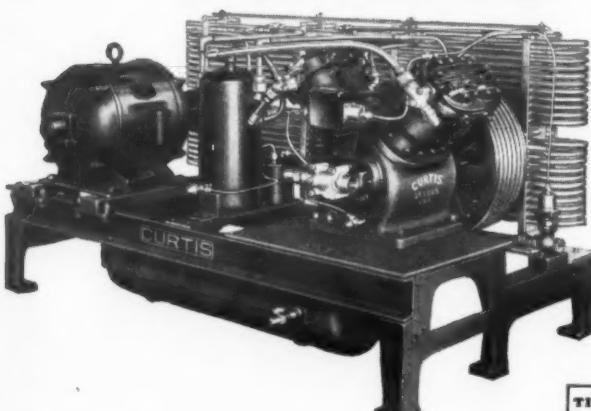
"Any blockade of the normal channels of trade, such as this complaint charges, is an interference with industrial recovery."

Companies named as co-plaintiffs with Nema are: Allen-Bradley Co., Milwaukee; Allis-Chalmers Mfg. Co., Milwaukee; Clark Controller Co., Cleveland; Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.; Cutler-Hammer, Inc., Milwaukee; The Electric Controller & Mfg. Co., Cleveland; General Electric Co., Schenectady; Hardwick Hindle, Inc., Newark; Monitor Controller Co., Baltimore; Palmer Electric & Mfg. Co., Waltham, Mass.; The Rowan-Controller Co., Baltimore; Square D Co., Detroit; Trumbull Electric Mfg. Co., Plainville, Conn.; and Westinghouse Electric & Mfg. Co., Pittsburgh.

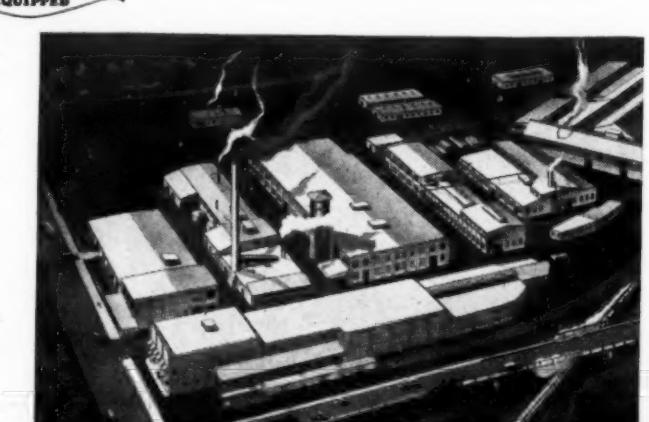
## 72,000 Chicagoans Visit 'New American' Home

CHICAGO—Seven "New American" model homes in Chicago and suburbs have attracted over 72,000 visitors during their first month of "open house," reports A. L. Fridstein of R. Cooper, Jr., sponsor of the local demonstration and distributor of G-E refrigerators, ranges, and other home appliances.

## ONLY CURTIS CAN GIVE YOU



- The Most Complete Line (65 sizes)
- Timken Tapered Roller Bearings (long life)
- "V" Type Radial Design (short sturdy crankshaft)
- Patented "Centro-Ring" Oiling (Positive Pressure Type)
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These features insure highest efficiency, low operating cost and long life.

There is a correct CURTIS Unit for every Commercial, Industrial or Air-Conditioning installation.

Sizes 1/6 H. P. to 15 Tons

CURTIS REFRIGERATING MACHINE CO.  
Division of Curtis Manufacturing Company  
1912 Kienlen Avenue, Saint Louis, U. S. A.

## Distributors View New Style Improvements In S-W '36 Line

(Concluded from Page 1, Column 5) are insulated with Balsam Wool. Dulux and porcelain finishes are available.

Again this year Stewart-Warner refrigerators will be powered with a two-cylinder compressor of conventional design, operating on a slow cycle.

Modernistically designed, the cabinets have a "terraced" effect on the eye. They are all white on a heavy black base. Unusually large ice cube capacity is provided for, along with the extra convenience features. Each box is equipped with an interior light which is—appropriately—frosted.

Following a minute inspection of the new refrigeration line, Mr. D'Olive staged a skit which "brought down the house." In it a deaf-and-dumb floor salesman sold a prospect a 1936 Stewart-Warner refrigerator entirely by demonstration and gestures.

Advertising Manager Fred Cross and Advertising Agent Hays MacFarland told the distributors that the 1936 Stewart-Warner refrigeration advertising campaign (largest in the company's history) will be built around the theme of convenience. M. O. Beckham offered advice on how to get the most value out of cooperative advertising fund.

F. A. Hiter, vice president in charge of sales, analyzed the 1935 refrigeration business done by the company and its distributors, giving especial attention to coverage and profits.

R. S. Brunhouse outlined the schedule and program for coming distributor sales meetings, and E. R. Rutledge gave detailed plans for holding dealer meetings. Financing of time payment paper was discussed by Mr. Ditzell.

Others who spoke included Gus Treffisen, W. A. Biel, R. J. Lawrence, and A. H. Kessler.

No formal banquet was held, the distributors repairing each evening to the Silver Forest room of the Drake, where Horace Heidt and his Alewife Brigadiers (who play on the Stewart-Warner radio program) plays and entertains nightly.

## Bastian Blessing-Russ Opens N. Y. Branch

NEW YORK CITY—Bastian Blessing Co. and Russ Soda Fountain Co. have leased a new showroom and headquarters for their New York branch office at 635 Sixth Ave., corner of 19th St., here. The two companies consolidated their local branches on April 1 of this year.

The new salesrooms, which have a floor space of 20,000 sq. ft., are said to be the largest devoted to soda fountain display equipment on the eastern seaboard.

Bastian Blessing Co., with factories at Chicago and Grand Haven, Mich., manufactures soda fountains, bar and service fixtures, bottling bars, ice cream freezers, coffee urns, ice cream cabinets, and parts. Russ Co. manufactures soda fountain, beer, and luncheonette equipment.

The National Users and Chain Store division of the organization, under the management of James J. Gavigan, will have its headquarters at the new location. Branch manager is Charles Q. Sherman, former sales manager of Russ Co. at Cleveland.

## New Vice Presidents



G. S. Crane (left), sales manager, and W. C. Stevens, chief engineer, have both just been elected vice presidents of Cutler-Hammer, Inc., Milwaukee, Wis., by the board of directors. Cutler-Hammer manufactures controls for use on refrigeration systems and for other applications.



## Refrigerant Issue in Spotlight at Hearing

(Concluded from Page 1, Column 4)

BOOK, Mr. Eustis said that at the end of 1934 there were 345,000 household refrigeration units and several thousand commercial refrigeration machines installed in the city of New York, of which 241,000 of the household units and about half of the commercial units employed sulphur dioxide.

He then contrasted the three deaths in 17 years from these machines with the 7,750 deaths in the similar period from gas ranges.

W. H. Allison of the Automatic Refrigerating Co. requested that the code be amended to permit the use of methyl chloride. He said this could be done by enforcing the limitation which his company has imposed, limiting the methyl chloride in any system to an amount which, if released, would result in a concentration no greater than 2 per cent by volume.

## Terms Are Established On EH&FA Financing

(Concluded from Page 1, Column 4)

sales contracts or chattel mortgages on these products are two years for washers and vacuum cleaners, and three years for other appliances, where only one is covered in a sale, or four years for two appliances.

To be eligible for financing, unpaid balance must be more than \$40. Monthly payments may not be less than \$150, and the down payment not less than 5 per cent of the face of the customer's obligation which the authority purchases.

Financing of wiring installations by REA instead of by EH&FA will tend to centralize the rural aspects of the government's electrification program, and will enable EH&FA to concentrate on financing appliances.

First EH&FA contract, after its extension to a national basis, was with Richmond, Ind.

## Cooking Schools Aid Sales of New York Kelvinator Dealers

DETROIT—To help speed up Christmas sales of Kelvinator refrigerators and ranges, cooking school demonstrations were held the latter part of last month by two New York dealers, Joseph Rose & Sons Co. Furniture Store, Long Island City, and Schwegler Bros., Niagara Falls.

With the assistance of power companies and dealers in Long Island City, the Rose Co. staged combination electric show and cooking school for the general public, under the direction of Miss Eloise Budde, home economist for E. A. Wildermuth Distributing Co. The demonstration was previously announced in newspaper advertisements and personal invitations, and was held twice daily, in the afternoon and evening.

Guest speakers on the program were Miss Eva McPherson, director of the Kelvinator home economics department, and Miss Ruth I. Bean, New York home economist for the P. E. Dyer Co.

Two ranges and three refrigerators were sold during the show.

Mrs. Norma Neihoff, home economist of the Kelvinator Buffalo branch, directed the "Holiday Parties," or cooking school demonstration held by Schwegler Bros. The cooking school platform was stationed in the show window of the store, visible both from within and without. Free refreshments were provided, and prizes awarded each day for the most helpful list of cooking suggestions.

A Kelvinator range and refrigerator were sold during the show.

## Cooke Resigns as Board Chairman of EH&FA

WASHINGTON, D. C.—Morris L. Cooke, head of the Rural Electrification Administration and chairman of the executive committee of the World Power Conference, has resigned as chairman of the board of directors of Electric Home & Farm Authority, the government-owned corporation formed to aid in the distribution of electrical equipment.

Mr. Cooke will, however, retain his position as a trustee of EH&FA.

Lack of sufficient time to properly perform his duties with EH&FA was given as the reason for Mr. Cooke's resignation. Reports that it was due to disagreement over the terms of financing appliances for REA consumers have been denied by both REA and Reconstruction Finance Corp.

## Utility Uses New Meter To Show Actual Cost Of Appliance Use

BIRMINGHAM, Ala.—How many cents does it cost to cook a meal or to operate an electric refrigerator or other appliances for a stated time?

The Alabama Power Co. can now quickly show the customer (as well as tell her) with a new type meter which measures the current flow in cents instead of the usual scale. The new device is being used at cooking schools and other sales demonstrations.

## M. F. Cotes Made Head of M-W Heater Division

LANSING, Mich.—M. F. Cotes was elected vice president in charge of the heater division of the Motor Wheel Corp., at a recent meeting of the board of directors held here.

## U. S. Policy in Taxing Rebuilt Units Seems To Be Inconsistent

(Concluded from Page 1, Column 1) minds is a very fair one, and I really believe that a Treasury Department ruling specifically covers such rebuilding work.

"If the New York department's interpretation were correct, every used automobile to which a new part was added would be subject to new car tax and so would every repair job on a refrigerator component. Obviously, this could not be the intent of the law, and so I am of the opinion that the definition as given above by the Los Angeles office is probably correct."

Mr. Roth also calls attention to a ruling which Refrigeration Service, Inc., obtained from the Treasury department in Washington.

The letter from the Treasury department, signed by D. S. Bliss, deputy commissioner, is as follows:

**Question 1:** "If a used refrigerator is brought into a dealer's place of business and is overhauled and whatever parts proved defective are added and the refrigerator subsequently sold as a reconditioned refrigerator, would it be subject under any conditions, to the Federal Excise Tax?"

**Answer:** Section 608 of the Revenue Act of 1932 imposes a tax on the manufacturer's sale price of household type refrigerators operated with electricity, gas, kerosene, or other means, and cabinets, compressors, condensers, expansion units, absorbers, and controls for or suitable for use as part of or with such household-type refrigerators, including in each case parts or accessories sold on or in connection therewith. If a used refrigerator has not been rebuilt to the extent that it has lost its original identity, no tax attaches to the sale price of such refrigerator. However, if any of the above-mentioned components are used in repairing a refrigerator, the manufacturer of such components is liable for tax, based on his sale price thereof, as provided under section 608 (b).

**Question 2:** "Some dealers are also under the impression that new electric motors installed on existing household refrigeration installation, are also subject to the Federal tax but our understanding is that such items as these which are merely replacement parts and which moreover belong to the 'general class of merchandise used in any industry,' are not subject to this tax."

**Answer:** Electric motors are not taxable when sold separately but if sold on or in connection with the sale of any of the components enumerated in section 608 (b) of the Act, the tax attaches to the manufacturer's sale price of the refrigerator components, including the electric motors.

## Rex Mfg. Co. Offers To Pay Bonds

CONNERSVILLE, Ind.—Rex Mfg. Co., Inc., producer of household refrigerator cabinets for Crosley Radio Corp. and various other companies, has issued a proposal to stockholders holding \$85,000 worth of 6 per cent bonds, to convert such bonds into 6 per cent preferred stock. The company has also made a proposal to non-stockholders holding \$22,000 worth of such bonds to convert them into 6 per cent preferred stock or receive payment at once in cash amounting to 75 per cent of the total principal and interest due on Dec. 31, 1935.

The bonds were issued about three years ago when the Rex company suffered heavy losses because of the cancellation of large cabinet orders by customers whose operations were curtailed by depression conditions.

The refinancing plan will permit the company to obtain a \$50,000 loan needed to handle orders which have already been booked for the coming season.

The Rex company has recently installed a new high bake Dulux paint system.

## Keeping Pace

OUR engineering staff is continually alert to improve the line of ACE HARD RUBBER DOORS, RAILS, JAMBS and other parts for Display Refrigeration Equipment. Manufacturers look to us for standard products and dependable service. They get it.

A complete catalogue will be mailed to manufacturer who wishes to consider Ace products and Ace service.

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11 MERCER STREET, NEW YORK, N. Y.  
Akron, O. • 111 W. Washington St., Chicago

## Latham Believes Improved New York City Real Estate Situation Will Help Sales

By Phil B. Redeker

**NEW YORK CITY**—L. E. Latham of the E. B. Latham Co., which distributes the Leonard line of household electric refrigerators here, believes that sales in the New York City metropolitan area next year are due to show an increase.

In making this prediction, Mr. Latham was careful to point out that sales this year in New York City failed to record a gain over a comparable period in 1934—in fact, for the first nine months of 1935 it was estimated that a slight decrease was shown as compared to the first three-quarters of the previous year.

Mr. Latham's predictions of improved business for New York City household electric refrigerator dealers and distributors is based upon the improved real estate situation.

"We have problems in this market which are different from those faced by distributors in any part of the country," Mr. Latham opened.

### Tangled Situation Unsnarled

"The tangle of amortization and rehabilitation problems which slowed up and complicated the apartment house business is being worked out in a very satisfactory fashion, and the progress that is being made in these matters makes it appear that apartment house sales will be better."

At the same time, Mr. Latham explained that the unusually high market saturation point on refrigerators in New York apartment houses might be a deterrent to sales were it not for the fact that many of the installations are old enough to constitute a replacement market of considerable proportions.

"Approximately one-third of all apartment house refrigerator sales in this city last year were for replacement purposes and I venture to say that it will not be very long before apartment house sales here will be on the basis of 50 per cent replacements."

Another heartening sign, says Leonard's distributor, is that there is new building going on and considerable improvement of old property underway.

### New Building in Evidence

"Something like 65 new apartment house buildings were erected in Brooklyn alone thus far this year," Mr. Latham declared.

People are again investing their money in real estate—some say as a hedge against the possibility of inflation.

"Syndicates of investors are being formed to invest money in new building and property improvement, and their financial status is such as to make the trend important."

One phase of the property improvement program that is important to the refrigerator industry, believes Mr.

## General Refrigeration Steps up Production

**BELOIT, Wis.**—General Refrigeration Corp., manufacturer of Lipman equipment, has stepped up its production schedule, and is now running its factory in two 8-hour shifts to fill early-winter orders, which, company officials claim, have been unusually high during a period when sales in previous years were below average.

Stepped-up production, officials claim, is partly to fill a large order for railway air-conditioning compressors.

## Louis Buehn Co. To Cease Operations Dec. 31

**PHILADELPHIA**—Louis Buehn Co., a distributor of electrical appliances here for the past 36 years, will discontinue operations Dec. 31.

Louis Buehn, founder and president of the company, will devote his time to travel and recreation. His son Louis E. Buehn will enter the advertising agency field, while his son-in-law W. L. Anderson is making new business plans.

The Rumsey Electric Co., 1700 Arch St., will succeed the Buehn Co. as Atwater-Kent distributor in this territory.

## E. H. Campbell Resigns from Rex Cole Position

**NEW YORK CITY**—E. H. Campbell has resigned as sales promotion manager of Rex Cole, Inc., General Electric distributor, effective Dec. 31. His future plans will be announced later, Mr. Campbell said.

**TEMPRITE**  
INSTANTANEOUS  
BEER and WATER COOLERS  
DETROIT — MICHIGAN

Latham, is the tendency to convert a single-type residence into a two-flat dwelling, thus providing a market for "two refrigerators where only one had stood before."

Mr. Latham believes that the dealer in the suburbs and small towns in his area will continue with aggressive specialty methods next year.

### Small-Town Dealer Loyal

"We have every reason to have faith in the *small town dealer*," Mr. Latham said, "They did a good job for us this year and we know that they'll do another good one for us next year."

The small town dealer usually handles the line on our exclusive basis, pays share of the advertising cost, and is very loyal, the latter fact probably being due to the wide diversification of electrical merchandise which we handle, many dealers having been with us before refrigerators were introduced.

"This combination of factors, just named, insures a good presentation of the Leonard refrigerator by the dealer."

The modernization loan provisions of the National Housing Act have proved a sales stimulus, especially to the small dealer, Mr. Latham states.

In some instances it has brought sales that otherwise would not have been made. Mr. Latham, explaining how this was brought about, relates the following story:

### FHA Experience

"We had a dealer who had a fair business, but whose sales volume took a tremendous jump shortly after refrigerators became eligible under the FHA plan.

"He was in the office one day and I asked him, 'How does it happen that your sales took such a jump all at once?'

"'Why, I could have made some of those sales a couple of years ago,' he replied, 'if I had dared to take the credit risk.'

"It wasn't that these prospects' credit was all bad, but I just couldn't afford the risk. However, now that the financing is on a non-recourse basis I just went out and cleaned up all these prospects at once.'

Mr. Latham says that the FHA situation has been "clean" in New York City, and that the insured institutions loaning the money report that repossession are very low, running less than 1 per cent.

In fact, says Mr. Latham, one leading bank in New York City handling loans under the FHA setup plans to continue the financing of appliance sales under a similar plan of its own if the National Housing Act is not extended after its date of expiration, April 1.

## Home Showings Build Sales for Bogart

**TOLEDO**—Home service department of the H. G. Bogart Co., General Electric distributor here, has helped the company to achieve what H. G. Bogart, president, calls the "best range selling period in the history of our business."

Mrs. Alma Harshbarger, director of the home service department, has made 380 home calls during the past year; of these, 231 were refrigerator calls, 74 range demonstrations, and 63 ironer demonstrations. Mrs. Harshbarger spent five days giving demonstrations at county fairs, and assisted in the six training schools for salesmen conducted by this company.

Other activities of the home service director included cooperation with the home service division of the George Wyman department store at South Bend, Ind., which is under the direction of Mrs. Helen Harris.

Mrs. Harshbarger recently lectured and gave a demonstration on the all-electric kitchen at the school sponsored by the *News-Sentinel* Kitchen Institute, located in the E. A. Barnes store at Fort Wayne, Ind.

The large number of range sales attendant with her cooking schools have been partly due to the fact that more men have attended these classes than at any other times, states Mrs. Harshbarger.

## Leonard Cooking School Draws 10,000 Women

**YONKERS, N. Y.**—A Leonard electric refrigerator was given away as a prize at the "Hostess Week" cooking school held in the armory here recently by Loewey's Hardware Co., Yonkers Leonard dealer, in cooperation with the *Herald Statesman*, local newspaper.

Approximately 10,000 women attended the cooking school, with 3,100 women attending the final day. Philip Loewey, head of the hardware company claims that several sales resulted directly from the Leonard on display.

## New Home Construction Offers Biggest Opportunity In 1936, Koblick Tells G-E Distributors

**CLEVELAND**—The increased activity in the construction of new homes will provide distributors of electric refrigerators and other appliances with their greatest selling opportunity in 1936, George Koblick, manager of apartment house sales, told General Electric distributors during their tenth annual national sales conference here recently.

New home construction reached a peak of \$50,000,000 in June of this year, Mr. Koblick said, about two and one-half times any similar period for the past three years.

### Relationship on Costs

"Builders of homes will tell you there must be a definite relationship between the cost of the kitchen and the cost of the house," said Mr. Koblick. "Today practically everyone can enjoy electric kitchen convenience."

He pointed out that G-E is now offering complete all-electric kitchens, with a definite coordination of styling and design in all appliances, for as low as \$450.

Discussing the company's "New American" home building project, Carl M. Snyder said that inquiries from home-makers, builders, and architects had indicated a widespread interest in the all-electric home.

### Homes Only 5% Electrified

American industry is about 85 per cent electrified, while the American home, biggest of all industries, is only 5 per cent electrified, despite the fact that housewives are the biggest purchasing agents.

R. C. Cameron, head of G-E's department store activities, urged distributors to go after business in that field, pointing out that they are able

to offer department stores a complete line of appliances, through one manufacturer.

### Will Boost Utility Revenue

Worth of the all-electric kitchen to public utility companies was explained by H. H. Bosworth, head of central station activities for G-E. Average consumption of the all-electric kitchen is more than 5,460 kwh. per year, he said, with an average annual revenue, to the utility, of around \$102.50.

This amount, Mr. Bosworth said, equals more than eight average new customers in kilowatt hour consumption, or more than three average new customers in added revenue.

National magazines will again form the backbone of G-E's 1936 advertising program. Outline of the campaign was given to distributors by A. L. Scaife, advertising manager.

One feature of next year's campaign, from the company's standpoint, will be an emphasis on radio spot announcements of approximately one minute in length. Suggested spot announcements will be supplied dealers upon request.

Distributors were urged to tie in with national magazine advertising in various ways, one being the display of reprints of current magazine ads, or actual copies of the magazine containing the ad.

### New Advertising Plans

Outdoor advertising material supplied by the company will include at least four posters, 24-sheet size. In addition, several three-sheet posters will be available.

Six animated window displays will be released during the year, as well as lithographed displays on refriger-

ator, range, and dishwasher, to dealers and distributors who desire them. Floor displays will include the display kitchen backgrounds, oil demonstrating unit, and the "talking kitchen" exhibit, seven of which are now in almost continual use, Mr. Scaife said.

Direct mail will include pieces on the refrigerator, range, and dishwasher, pieces directed to the apartment house field and the commercial refrigeration field; folders, envelope inserts, and various four-color booklets.

Movies include one-minute trailers for neighborhood theaters; the G-E movie, "Three Women," released this year, which, Mr. Scaife said, has been shown to 700,000 people; and "Just Around the Corner," which has been seen by an estimated 10,000,000 people.

## Miss. Power Stresses All-Season Need

**JACKSON, Miss.**—"Don't depend on nature for refrigeration this winter" is the theme of a current advertising campaign by the Mississippi Power Co. and cooperating electric dealers, the idea being to stimulate off-season electric refrigerator sales.

The public is reminded that last winter in the state there were only 11 days with "safety zone" temperatures, that is, with the temperature ranging between 32 and 50° F. Depending on nature for refrigeration is declared to be as "uncertain as a weather vane," in campaign copy.

## 93,627 Vacuum Cleaners Sold in October

**CLEVELAND**—Total sales volume of vacuum cleaners during the month of October was 93,627 floor cleaners and 29,047 hand cleaners, reports E. Murray of the Vacuum Cleaners Manufacturers Association.

### 20 QUALITY FEATURES

#### (No. 3)

Servel's Copper-Lead  
Connecting Rod Bearings  
Insure Permanent Efficiency and  
Low Repair Costs.

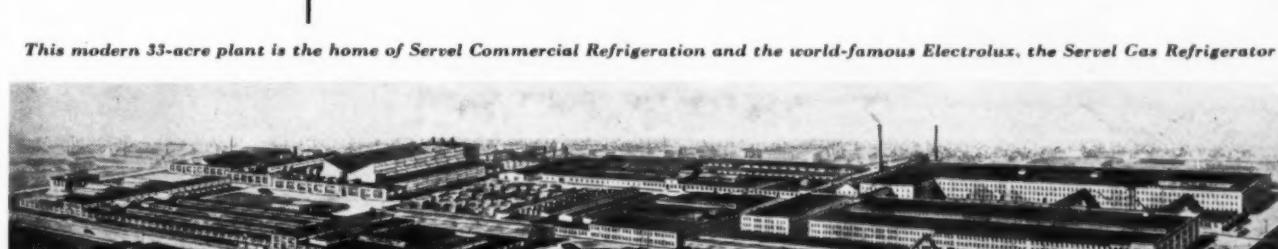


## THE ERA OF PROFIT

The New Year ushers in a period of rich possibilities for aggressive merchandisers . . . In the field of commercial refrigeration and air conditioning, every sign points to a new era of bigger profits . . . Servel dealers, offering the finest and most complete line in Servel history, will enjoy a substantial share of these profits . . . Direct factory contracts on both commercial refrigeration and air conditioning products are available in certain areas at this time.

## SERVEL COMMERCIAL REFRIGERATION

SERVEL, INC. Commercial Refrigeration Division EVANSVILLE, IND.



*There is no Substitute for Experience*

## Doyle Will Manage Distributorship

WASHINGTON, D. C.—Joseph A. Doyle, formerly sales manager for Norge Corp. of New York, has been appointed general manager of Columbia Wholesalers, Inc., Norge distributor here, a subsidiary of the Joseph M. Zamoiski Co., which has headquarters in Baltimore.

Mr. Doyle has had many years experience in the refrigeration field. He was factory representative for Grigsby-Grunow Co., manufacturer of Majestic refrigerators and radios, and a distributor for that line in Albany, N. Y.

Mr. Doyle succeeds L. R. McDowell, who resigned from Columbia Wholesalers, Inc., where he had been manager for a number of years.

## Turkeys & Geese Given As Radio Contest Prizes

ST. JOSEPH, Mo.—To stimulate Christmas sales of Crosley radios, American Electric Co., Crosley distributor here, conducted a dealer contest with prizes of turkeys and geese offered.

Awards were made on a point basis, with turkeys for dealers who made 4,000 points or more, and geese for those making over 2,000.

To win a turkey it was necessary for the dealer to sell from 15 to 20 of the smaller size radios, or five of the larger models.

H. Borchardt, Jr., of the sales department, managed the contest, which closed Dec. 20.

## Refrigeration Show Planned At Texas Exposition

DALLAS—The triumph of science over waste through the development of mechanical refrigeration will be the theme of the refrigeration exhibits at Texas Centennial Exposition, opening here next June.

Examples of the most modern methods in all branches of refrigeration will be shown by General Electric, Westinghouse, and other companies.

The exhibits will show mechanical refrigeration equipment for every purpose in operation.

In the Hall of Foods and Beverages will be shown the manufacture and uses of solid carbon dioxide.

## Decorative



Kelvinator's new master model "streamlined" bottled beverage cooler is inspected by A. H. Reinach, staff head of commercial department, and A. U. Salomon.

### Five New Bottle Coolers Built by Kelvinator

DETROIT—Production of a new line of bottled beverage coolers, which includes two standard and three special models, was started at the Kelvinator Corp. factory recently.

Styled in modernistic lines, the new models are finished in red, with extensive chrome trim and black base.

Feature of the standard model is a newly designed roll top. Lids of the sliding top glide on rolls, thereby eliminating hinges. This arrangement permits both lids to lie flush when the cabinet top is closed.

Model BC-150, the standard master cooler, has a capacity of 150 6-oz. bottles. A standard coin device cooler, model VTC-46, similar in size to the master cooler, holds 46 6-oz bottles in the coin device, and 16 bottles in the precooler.

Special model BCW-90 is a small combination beverage and water cooler, with a capacity of 90 6-oz. bottles and from 3½ to 5 gallons of water per hour. Two other special order models, a 23-bottle vending cooler and a 90-bottle regular cooler, complete the new line.

Kelvinator's new beverage coolers will be sold through its distributor-dealer organization direct to retailers.

## Market for Ironers Is Discussed by Hurley

MILWAUKEE—Electric ironers hold great sales possibilities for appliance dealers, Jason Hurley of Hurley Machine Co., Chicago, told members of the Wisconsin Radio, Refrigeration, & Appliance Association at their regular meeting Dec. 4 in Hotel Knickerbocker here.

During the period from 1930 to 1935, Mr. Hurley said, sales of ironers had totaled only 404,276, while washer sales had soared to 4,287,462, and flat iron sales to 11,472,869, a ratio of approximately 10 to one in washer to ironer sales, and of 30 to one in flat iron to ironer sales.

Electric ironers show a sales saturation of only 4 per cent, compared to a 46 per cent saturation of washers, the speaker declared.

Breaking sales resistance, Mr. Hurley declared, is largely a matter of educational salesmanship. The average housewife, he said, hesitates to buy an electric ironer because she believes she cannot successfully iron shirts with it.

"Maybe she can't while she is learning," Mr. Hurley admitted, "but she can do all of the flat work on her ironer."

"The vacuum cleaner doesn't do a 100 per cent job of sweeping or cleaning; the radio doesn't do a 100 per cent job of entertaining; the automobile doesn't do a 100 per cent job of transportation, either," he added. "All these articles, now fully accepted by the public, do no better than an 80 per cent job—and flat work makes up 80 per cent of all ironing."

"Women can learn to iron shirts properly with an ironer after they have become experienced with the appliance."

"To sell ironers, sell the women on the 80 per cent job that one will do even for novices—and on how much of the drudgery it will take away from her ironing work."

A committee of association members was also appointed, to cooperate with the Wisconsin Utilities Association in promoting problems of mutual interest.

On the committee are F. W. Greusel, Maurer-Greusel Co.; Henry Czech, Westinghouse Electric Supply Co.; Charles Willert, Morley-Murphy Co.; E. H. Schaefer, E. H. Schaefer Corp., and Charles Turnock, Charles E. Turnock Co.

A. C. Davey of the Wisconsin Public Service Corp., Oshkosh, is chairman of the utility committee.

## Sales Idea of the Week

By V. E. (Sam) Vining, Director of Department Store Sales, Westinghouse Electric & Mfg. Co.

During a dull season when everybody we approach says: "We are going to buy, but wait 'till Spring"—

I am always reminded of Minnie Dugan, who lived about a half block across the fields from my home as a kid.

Minnie was built on the general plan of a red bank barn and had a voice like a hog caller's mamma.

Other assets—two beautiful daughters, "Clip" and "Ruthie."

One bright sunny morning, Minnie stuck her head out the back door, layed back her tonsils and bawled in the general direction of our kitchen:

"Addie—Addie!"

My mother went to the back porch and put her hand up to her ear as a signal for Minnie to commence talking.

"Addie," came across the back lots, "'Clip' says she's gonna get married and 'Ruthie' says she's gonna get married—

"But, My God—WHEN?"

\* \* \*

It has always been a consolation to me that Clip and Ruthie actually did get married. The thought renews my faith in the idea that some of the people I have been talking to actually will buy.

I never forget, however, that—

Minnie kept the hammock hooks well greased—kept the makin's for a midnight lunch in the refrigerator and used every other known high pressure method on two unsuspecting young male prospects—including going to bed early herself and leaving the kids to find their own closing arguments.

## Duke Power Holds School At Colored College

CHESTER, N. C.—Total attendance at the three-day cooking school for negroes, conducted by Mrs. Nell O. Brownlee, home economist of the Duke Power Co., Spartanburg, N. C., in cooperation with Brainerd Institute, colored junior college here, was 820 persons.

Approximately 150 persons attended the class held the first night; while guests numbered 275 the second night, and 395 at the last cooking school session.

The school was held in the Brainerd Institute auditorium where an electric refrigerator, electric ranges, and other appliances were installed.

Salesmen of a branch store of this distributor recently conducted a survey in which they reported that in the 19 calls each salesman made each day, 17 housewives testified that they listened to Miss Wood's program regularly.

Broadcast from 10 to 10:30 each morning, the program contains instructions for the preparation of two or more selected dishes, rather than for a full meal. Miss Wood prepares the dishes as she broadcasts in the G-E Health kitchen at Caswell's main showroom.

Besides the air-audience, guests-in-person, invited by salesmen and by radio announcement, attend the demonstrations. A prize of a General Electric food mixer is given each week to a "lucky" guest.

To lend variety to the broadcasts, guest home economists are invited to participate.

## Radio Cooking School Proves its Popularity

DETROIT—"Mixing Spoon of the Air," the cooking school broadcast which Miss Una Wood, home economist of Caswell, Inc., General Electric distributor here, conducts six days a week over station WXYZ, has proven a highly productive sales-getting activity for this company, states Harry E. Warren, Caswell sales promotion manager.

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# QUIET STARTING

Here's good news about noise—of particular value to users and manufacturers of Air Conditioning and other Service Equipment—where quiet is always an important factor!

When the New Century Polyphase Motors start, there is a conspicuous absence of the usual grunting, singing and whistling noises!

This substantial noise reduction has been achieved by new, improved features of design . . . Proof on request.

Another distinct contribution by Century!

CENTURY ELECTRIC COMPANY  
1806 Pine Street St. Louis, Mo.  
Offices and Stock Points in Principal Cities

Century MOTORS

UP TO 600 HORSEPOWER

## RESOLVE TO PROSPER WITH Copeland IN 1936



COPELAND Commercial REFRIGERATION

Copeland Commercial Unit sales have taken big jump. Orders on hand for January are unusually heavy. Already large plant facilities have been further increased, and the outlook for 1936 is one of large sales and big production. Copeland is in splendid position to make 1936 the biggest year of all.

You can do much better with Copeland Commercial Refrigeration. This big quality line offers you many selling advantages. A limited number of territories are still available. Write us at once.

COPELAND REFRIGERATION CORPORATION

Manufacturers of a complete line of Household and Commercial Refrigeration

Holden Ave. at Lincoln . . . DETROIT, MICH.

**C O P E L A N D**  
DEPENDABLE Electric REFRIGERATION

**COMMENT**

By F. M. Cockrell

**Merry Christmas**

Thanks to the following for kindness in putting my name on their lists to receive attractive Christmas messages, also congratulations on their ability to get holiday greetings mailed early. Mine are always late.

Frank E. Hansen, F. C. Lovelock, Ltd., Sydney, Australia; Elmer G. Biechler (Frigidaire); Henry W. Burritt (Kelvinator); Frank McNeal (Universal Cooler); William Rowles (Norge); Campbell Wood (Kelvinator); Frank W. Greusel, Mauer-Greusel Co., Milwaukee; Jim Beckman (Crosley); Irving J. Knudson (Detroit Lubricator); Edward Beech Mallory, Tenafly, N. J.

The Super-Cold Corp., Los Angeles; Ansul Chemical Co., Marinette, Wis.; Seeger Refrigerator Co., St. Paul; Refrigeration Appliances, Inc., Chicago; Caraway Engineering Co., Dallas, Tex.; Stewart N. Clarkson Associates.

\* \* \*

**Pious Joke**

Referring to the picture of J. J. Flanagan and myself published on the "Comment" page of the Dec. 11 issue which carried the caption "What Does a Space Buyer Laugh At?" A. H. Ahrens, publisher of *Hotel Management*, writes as follows:

"If you really want to know what the space buyer is laughing at, I would guess that you were showing how a piece of pie can be caught in one hand."

\* \* \*

**Association Executives**

Apologies to J. D. Colyer and F. J. Gleason, president and executive secretary, respectively, of the newly organized Refrigeration Supplies and Parts Manufacturers Association, who posed for pictures in my office last week. The original prints show the smiles and gestures but are not clear enough to make a good engraving.

\* \* \*

**Mayflower Style**

F. C. Geiler of Mayflower, Inc., Lima, Ohio, who visited the News offices in Detroit last week, reminded me that the Mayflower electric refrigerator was the first unit to be "styled." Or, as Mr. Geiler expressed it, they were the first to apply the "furniture idea" to refrigerators. If anyone disputes that claim, let him speak now.

\* \* \*

**California Visitor**

Among others who visited our offices last week to bring news or seek information was Hugh H. Logan of the Wilson Refrigerator Lock Co., 5225 Wilshire Blvd., Los Angeles.

Mr. Logan has an idea that there is some good pay dirt in the hardware business and he is digging into the situation. He asked an appalling lot of questions, many of which I could not answer.

\* \* \*

**Shoemaker's Children**

Like the shoemaker who never has time to make shoes for his children and the farmer who has no milk to use at home because he sells it all to the dairy, no one at the News office has found time to write a good description of our own air-conditioning installation.

When we started to work, about two years ago, on the installation of an all-year air-conditioning system in the home of the News, it was my intention to report the details of our experience in getting the system into operation. The job of remodeling the entire building, however, took up so much of my time that I had to give up the idea of writing the story myself.

By the time our offices were moved into the old building, we started work on a new addition. Weather conditions delayed the work so that it dragged along throughout the winter and in spite of all efforts to get the place finished and fully equipped during the summer, there still remain a number of odds and ends to be cleaned up.

Regardless of what the air-conditioning experts (if any) may think about it, I might as well admit the fact that the air-conditioning installation for our new building is not yet completed.

\* \* \*

**Steady Jobs**

Maybe it never will be, for all I know. Every time we think that it is all doped out, we learn something new or we hear about another gadget which looks interesting, so we call in

**LARKIN COILS**  
Always LEAD  
• SERVICE  
• FEATURES  
• PRICE

**Electric Invisible Kitchen**

The Electric Invisible Kitchen is correctly named, judging from this picture of the equipment which F. M. Cockrell recently had installed in a room adjoining his office. The outfit consists of a handsome metal cabinet equipped with an electric refrigerator, electric stove, dishes, assorted sizes of glassware, and a full set of culinary utensils, including a very durable looking corkscrew. Mr. Cockrell claims that the main reason for setting up his own office lunch facilities is that he doesn't like the brands of coffee served by any of the neighborhood eating places. In the above picture he is shown in the act of making his own according to his wife's recipe.

the sheet metal man, the steam fitter, and the electrician to take down some of the stuff which was put up a couple of months ago and do it differently.

It's got so that the various mechanics drop in every time they run out of a job just to see if we are ready to make some more changes. I notice that several of them are driving new trucks, wearing better clothes, and generally looking more prosperous since the News building has become sort of a combination publishing business and air-conditioning laboratory.

The other day one of them dropped in, collected his bill in full to date and wanted to know if he couldn't get a little advance on the next job.

\* \* \*

**Expensive Experience**

I am perfectly willing to admit that our air-conditioning experience has been decidedly expensive. But whenever we get around to the job of telling the story, we are certainly going to have a lot to tell.

Fortunately, I have not had to report to a board of directors and justify the expense, although Business Manager George Congdon has already had some arguments with the income tax auditors over how much of the cost should be charged to capital expenditure and how much should be rightfully charged to editorial department operations.

Looking at the matter from a publishing viewpoint, there were two ways to develop an editorial department to handle air-conditioning news intelligently.

The normal publishing procedure would have been to go out and hire an "air-conditioning editor."

I may be all wrong about the matter, but I figured that the salary cost of trying out two or three such editors would probably amount to about as much as the installation of the air-conditioning system. The advantage of the latter plan is that every member of the staff is learning about air conditioning from first-hand experience and we are also getting the benefits in health, comfort, and cleanliness.

\* \* \*

**Sell Clean Air**

I have a growing conviction that clean air is the best selling point to emphasize in educating the public to buy air conditioning. Take one look at the filters after a month's use and you will be horrified by the quantity of dirt and grease in the air of a city.

The vacuum cleaner salesmen have effectively demonstrated to millions of housewives how much filth can accumulate in their rugs and carpets. Can't someone rig up a small demonstrating unit which will show how an air filter collects the soot and dust which all city dwellers are constantly breathing into their lungs?

It may be difficult to get women to understand the importance of humidification and dehumidification but every housewife knows what it means to be fighting dirt day in and day out.

At the News office we have found that it is no longer necessary to cover typewriters and dictaphones and that our desks are free from the film of dust which is ever-present in most offices.

\* \* \*

**Salesmen Beware**

"Firing at Salesman Isn't a Crime!" is the headline of a newspaper item reported from St. Louis by Associated Press on Dec. 7 as follows:

"A Circuit Court jury held today that firing a shotgun at a persistent salesman was not assault with intent to kill. It freed Joseph Cockrell, 70,

**Systematic Preparation, Unusual Promotion Bring Results for Clare & Co. on New Lines**

ATLANTA—That systematic preparation and unusual promotion make it possible to build up sales of a new line in a short time was proved here when Clare & Co. sold 64 washers and 30 ironers during the first month it carried Westinghouse laundry equipment.

Before introducing the new line to its prospects, Clare & Co. enlarged its show room space, hired 10 new salesmen and a home economist, and secured two representatives from the Westinghouse factory to train the sales crew.

Opening wedge in the sales drive came when this store announced over a radio broadcast that it would demonstrate the new equipment by calling for any housewife's washing and returning it perfectly done within three days.

This advertisement brought in 200 calls the first day. Another home economist and a negro boy were added to the department, and 1,000 washings were put through the company's equipment the first week.

With 1,000 prospect names secured in one week, the company repeated its offer a second week, stipulating that the housewife would be required to come and watch the demonstration if she wanted her laundry done. Two hundred and twenty women came.

Next step in the sales campaign was a concentrated advertising drive in three local papers, followed up by home demonstrating "parties." Through this plan owners of washers or ironers purchased from Clare & Co. invited their friends to home demonstration parties at which the company footed the bills and conducted the demonstration, and the hostess received \$2 for every sale made to a guest who bought equipment within a month.

Illustrative of the success of this stunt is the fact that from one 32-person party which cost the company \$8.75, three washers and an ironer were sold.

Use of a truck fitted with washers and ironers, and manned by four salesmen, also aided the company to sell more units.

Total number of orders taken by this company at the end of a 70-day period was 206 washers and 97 ironers. Eight new men were added to the sales crew during this 70-day period.

**E. W. Ament Joins Parks & Hull Corp.**

BALTIMORE—Edward W. Ament, formerly manager of the Baltimore division of Southern Wholesalers, Inc., Kelvinator distributor here, has become associated with Parks & Hull Appliance Corp., local Westinghouse distributor.

Mr. Ament will work with Emory F. Lawrence, who is in charge of the refrigeration activities for the company, and will be in charge of sales of Easy washers, a line recently taken on by Parks & Hull.

**New Thrift Cooker Is Announced by G-E**

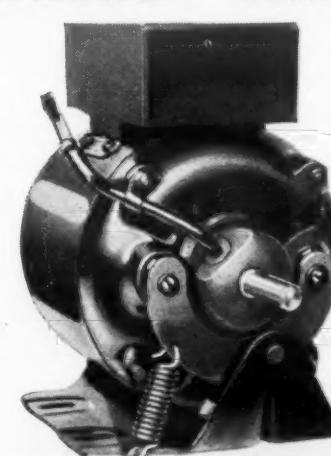
CLEVELAND—General Electric Co. has introduced a new Thrift Cooker for G-E ranges, declares J. R. Poteat, range manager for the company's specialty appliance sales division.

The new cooker will hold six quarts instead of five, and sinks into the well so the top is almost flush with the range top.

**ALL DELCO MOTORS HAVE BURNISHED SHAFTS**

For an electric motor bearing to be really long-lived, the shaft which revolves in the bearing must be unusually smooth. In Delco motors, smoothness of the shaft is assured by burnishing in a special machine developed by Delco engineers. This operation insures long bearing life, permits the maintenance of close clearances and reduces friction loss to a minimum. This is only one of many special processes which help to make Delco motors the outstanding choice of household appliance manufacturers. Delco Products Corporation, Dayton, Ohio.

Made in Canada by the McKinnon Industries Ltd.  
St. Catharines, Ontario



**DELCO MOTORS**

# AIR CONDITIONING

## Pittsburgh

Type of Establishment	Prior to 1935 No. Hp.	First 9 Mo., 1935 No. Hp.	Total Through 9 Mo., 1935 No. Hp.
Barber Shops	13 15½	2 14	2 14
Residences	38 133	19 56	57 189
Offices		1 500	1 500
Banks	14 743	17 124	31 867
Stores—Miscellaneous	12 335	12 316	24 651
Restaurants	7 2,377	2 170	9 2,547
Theaters		4 55½	4 55½
Beauty Shops		1 18	1 18
Combination Barber & Beauty Shop		3 24½	3 24½
Hotels	3 24½		2 503
Industrial	2 503	5 55½	9 124½
Miscellaneous	4 69	5 55½	9 124½
Totals	93 4,200	91 1,343½	184 5,543½

## New Orleans

Type of Establishment	Prior to 1935 No. Hp.	First 9 Mo., 1935 No. Hp.	Total Through 9 Mo., 1935 No. Hp.
Night Clubs		1 24	1 24.0
Offices (Private)	10 15.5	10 14.5	20 30.0
Offices (General)	5 94.5	2 61	7 155.5
Office Buildings	1 516	1 1,275	2 1,791.0
Restaurants	5 170.25	3 148.5	8 318.75
Hotels	2 107	3 196	5 303.0
Residences	24 59.5	23 78	47 137.5
Department Stores	5 1,911	1 24	6 1,935.0
Hospitals	3 11.5		3 11.5
Radio Studios	2 24.5		2 24.5
Clothing Stores	1 22.5		1 22.5
Theaters	4 1,442		4 1,442.0
Laboratories	1 43		1 43.0
Candy Manufacturers	2 50		2 50.0
Cake Manufacturers	1 12		1 12.0
Brokers' Room	1 10.5		1 10.5
Air Ports	1 105		1 105.0
Sugar Storage	1 1		1 1.0
Cigar Manufacturers	2 2		2 2.0
Pecan Dryers	2 1.5		1 1.5
Printing	2 3.9		2 3.9
Utility	1 4.5		1 4.5
Small Stores	9 164	10 107	19 271.0
Telephone Exchanges		2 6	2 6.0
Seed Storage		1 8.5	1 8.5
Railroads (Service for Cars)	5 380	5 380	8 380.0
Court Rooms		1 55	1 55.0
Funeral Homes		1 17.5	1 17.5
Totals	85 4,771.65	64 2,447	149 7,219.65

## New York City (Manhattan & Bronx Only)

Type of Establishment	Before 1935 No. Hp.	11 Months, 1935 No. Hp.	Total Through 11 Months, 1935 No. Hp.
Banks	14 2,148	7 809	21 2,957
Barber Shops		2 17.3	2 17.3
Beauty Parlors	1 9	1 3	2 12
Brokers' Offices	1 2		1 2
Offices	142 8,893	31 285.4	173 9,178.4
Retail Stores	40 2,378	59 1,917.3	99 4,295.3
Clubs	3 74	3 13	6 87
Industrial	12 434	5 50	17 484
Office Buildings		1 320	1 320
Department Stores	4 1,230		4 1,230
Hotels	18 2,277		18 2,277
Miscellaneous	25 1,977	9 100.7	34 2,077.7
Residences	29 93	4 10.3	33 103.3
Restaurants	102 4,455	63 2,123	165 6,578
Showrooms	11 78	1 12.5	12 90.5
Studios, Radio	5 2,086		5 2,086
Theaters	49 12,323	18 2,010	67 14,333
Theaters (Ice)	3 92		3 92
Totals	459 38,459	204 7,672	663 46,131

## St. Louis

Type of Establishment	Prior to 1935 No. Hp.	1935 (10 Mos.) No. Hp.	Total Nov. 1, 1935 No. Hp.
Residences	128 286.8	66 139.9	194 426.7
Offices	73 592.7	34 187.6	107 780.3
Retail Stores	25 833.7	25 509.9	50 1,343.6
Sales and Display Rooms	17 129.2	8 17.9	25 147.1
Hotel Dining Rooms and Coffee Shops	13 800.2	2 32.3	15 832.5
Restaurants and Liquor Dispensers	13 608.3	16 327.8	29 936.1
Miscellaneous	11 135.9	10 1,362.8	21 1,498.7
Industrial Processes	10 1,026.8	7 388.5	17 1,415.3
Theaters and Auditoriums	10 3,648.0	5 2,148.0	15 5,796.0
Bakeries	7 62.5		7 62.5
Undertakers	3 34.0	4 52.2	7 121.2
Banks	2 63.7	1 17.0	3 80.7
Beauty Parlors	2 4.3	1 3.3	3 7.6
Breweries	1 46.0		1 46.0
Office Buildings (Complete)	2 470.7	1 52.0	3 522.7
Printing Plants	1 48.0		1 48.0
Studios, Broadcasting	2 18.8		2 18.8
Service Stations	1 5.3		1 5.3
Totals	321 8,814.9	180 5,374.2	501 14,089.1

## Every Trace of MOISTURE REMOVED from

**EXTRA DRY ESOTOO**

(Liquid Sulphur Dioxide)

The precision methods followed in our production of EXTRA DRY ESOTOO naturally result in improved performance—a fact well-recognized by Service Men throughout this country and many foreign lands.

Our patented process removes every trace of moisture—every step in pro-

**VIRGINIA SMELTING CO.**  
Name \_\_\_\_\_  
Street & No. \_\_\_\_\_  
City & State \_\_\_\_\_

F. A. Eustis, Secy., Virginia Smelting Co., 131 State St., Boston, Mass.  
Send me the literature I have checked. I am interested in receiving any additional literature on Electrical Refrigeration you may issue from time to time.  
 Folder: Extra Dry ESOTOO (Liquid Sulphur Dioxide)  
 Folder: V-METH-L (Virginia Methyl Chloride)  
 Folder: Transitioning from large to small cylinders  
 Circular: Physical properties of various refrigerants

## Reports from Major Cities Show Gain in Air Conditioning Jobs

(Continued from Page 1, Column 3)  
reports, in every case results for the first 10 months of this year equalled or exceeded the whole of 1934.

This, to Mr. Michels, indicates that air-conditioning promotion, in its larger aspects, is independent of the influence of summer weather, and that the public, in general, is convinced that it is a necessary adjunct to business and to personal health and comfort.

The cool weather, he adds, affected only the small business for single rooms in residences and in executive offices.

"Judging from the experience in and about St. Louis, we are convinced that the public has accepted the value of air conditioning," Mr. Michels says. "What is most needed now in the sales process is to produce proof that summer air conditioning is no more expensive in first cost or operating expense than other conveniences, such as the automobile, which we have accepted as necessities."

## DETROIT

Detroit installations, reported for the first nine months of the year, increased from 60, for the whole of 1934, to 76, to bring the city's total on Oct. 1 to 267 installations.

Largest in point of number were installations in offices, 21 such jobs being reported compared with 46 in all previous years. Residential conditioning held its own, also, with 13 installations being added to the 34 already in operation at the start of the year.

Interesting in the Detroit total is the large number of installations of 25 hp. and over made this year. Outstanding, of course, were the installations made by Ford Motor Co. The company installed a total of 1,655 hp. in air-conditioning compressors this year in its administration building, engineering laboratory, foundry, drafting room, trade school, and rotunda building. In addition, a 250-hp. compressor was also installed for the year-round conditioning of Dearborn Inn.

A compressor of 75 hp. was installed in the F. W. Woolworth store, and one of 40 hp. added to the existing installation at the S. S. Kresge store, both in Detroit's downtown business section.

Webster Hall hotel installed two 25-hp. compressors for the conditioning of its dining room and coffee shop; the Grayson shop installed two 15-hp. compressors; Wright Kay & Co. jewelry store a 25-hp. compressor; and one of the Sanders candy stores another of similar size.

Well-water installations this year included eight theaters, a department store, a candy store, and an office, for a total of 223 hp., for pumps and fans, and 885 tons of refrigeration.

## JERSEY CITY

Jersey City installations for the nine months of this year showed a decline, only four being reported compared with six in all of 1934. No residential jobs were reported, and only two in offices throughout the city. One restaurant installed a system totaling 15 hp., and a factory one of 5 hp., to help the city attain its total of 22 hp. for the nine months period.

Uncertain business conditions and the relatively high cost of equipment are responsible for the city's comparatively low total, says C. W. Risley, division agent of Public Service

(Concluded on Page 7, Column 1)

duction is checked by trained chemists. And remember—V-METH-L is produced under the same exact control. You can rely on both for highest operating efficiency.

For details, the coupon.

## San Antonio

Type of Establishment	Prior to 1935 No. Hp.	First 9 Mo., 1935 No. Hp.	Total No. Hp.
Theaters	7 1,923	3 234	10 2,157
Office Buildings	3 707	1 7½	4 7½
Individual Offices	6 9	6 11½	12 20½
Apparel Stores	3 219	3 101½	6 320½
Restaurants	6 675	3 47½	9 722½
Funeral Parlors		1 13	1 13
Banks	2 327		2 327
Brokerage	1 28	8 22	23 50
Residences	15 28	8 22	23 50
Clubs	1 14		1 14
Broadcasting	1 6	</	

## Air Conditioning in San Antonio, Pittsburgh & New Orleans Increases

(Concluded from Page 6, Column 3)

Electric & Gas Co., the utility. To Oct. 1, a total of 21 installations, for 1,020 hp., had been made in the city.

There is a shortage of well-established local distributors, Mr. Riseney says, with displays and trained sales personnel to follow up and close prospects for conditioning equipment. The utility does no merchandising, but does have air-conditioning representatives who call on prospects to create a desire for air conditioning, and then strive to bring prospect and dealer together.

The company has carried on a continuous advertising program throughout the year, reports Mr. Riseney, using direct mail, newspapers, and billboards. Illustrated lectures have been prepared for showing to interested groups at luncheons and other meetings.

### SAN ANTONIO

Thirty installations were made in San Antonio during the first three-quarters of the year, compared with a total of 14 for all of 1934, and 48 in all years prior to 1935.

Four new fields were entered during the year: drug store, hospital, processing, and hotel. The hotel job was the largest single installation of the year, and totaled 532 hp. The drug store installation totaled 11 hp., the hospital 7 hp., and the processing job 3½ hp.

Residential installations for the period totaled eight, for 22 hp., compared with 15 for a total of 28 hp. in all years before 1935. Three theaters were conditioned for a total of 234 hp., and an equal number of apparel stores, for a total of 101 hp.

San Antonio Public Service Co., the utility, does no merchandising, its efforts being limited to promotional cooperation with dealers.

Some of the company's promotional work this year included a model display room, which was used during the spring and summer season as a show place for various types of unit coolers sold by local dealers. The room itself was air conditioned, and was available to dealers for demonstration purposes.

In cooperation with a local builder, a model home was erected, equipped with a year-round air-conditioning system. The home was open for public inspection at all times, and created considerable interest in the application of air conditioning to home use.

During July, San Antonio distributors and dealers joined with the utility in a two-weeks' show devoted exclusively to air conditioning. Equipment was shown in operation, and its component parts were shown and explained separately as well.

The utility also joined with distributors and dealers to form an air-conditioning bureau, to establish ethical business practices and promote the sales of air-conditioning equipment through cooperative educational campaigns.

Throughout the summer season, the utility and dealers made wide use of newspaper advertising, in addition to

radio programs, spot announcements, theater screen advertising, bus cards, outdoor advertising folders, and direct mail pieces, reports A. J. Rummel, industrial engineer of the commercial department of San Antonio Public Service Co.

### PITTSBURGH

Air-conditioning installations in Pittsburgh show a remarkable increase over the total made in 1934, the increase in connected horsepower load being more than 200 per cent. Number of installations, 91, is only two short of the 93 reported for all years before 1935, and well past the 59 made last year.

Encouraging factor in Pittsburgh's air-conditioning development is its diversified application. In 1935 alone, contracts were closed for an entire bank building, theater, a men's clothing store, a hotel ballroom, a jewelry store, barber shops, beauty parlors, restaurants, women's apparel shops, shoe stores, dairy stores, tap rooms, executive offices, and residences.

The bank building, hotel ballroom, and men's clothing store were the first of their respective types to be air conditioned in the city.

Largest installation during the year was a year-round system for the Mellon National Bank. Every individual office and department, including the banking department, comprising a volume of approximately 1,500,000 cu. ft., will be conditioned. Five central duct type systems will supply conditioned air to the bank and some 150 offices. Total refrigerating capacity is about 416 tons, and connected load approximately 500 hp.

The Alvin theater installation has a total capacity of 155 tons, obtained by a combination of cold well water and motor-driven Freon compressors. A connection for 50 per cent outside air is made with the conditioning chamber, in which are located the heating and cooling coils. The system is designed to maintain a temperature of 80° F. and 50 per cent relative humidity, when outside conditions are 95° F. with 75 per cent relative humidity.

Of the several restaurant installations, largest were those in McCann's and Donahoe's, each a combination restaurant and cafeteria. McCann's has a seating capacity of 600 people, and a floor area of 10,800 sq. ft. Equipment for Donahoe's was located in the roof of the building, because of a lack of interior space. A special penthouse was constructed, housing the compressors, filters, and cooling coils. Total cooling capacity of both jobs is about 175 tons, and connected load is about 165 hp.

The combination barber shop and beauty parlor located in the Grant building has combined its air conditioning with several other unusual features. There are telephone connections at every chair, show rooms, electrical cabinets which supply either hot or cold towels. Capacity of the air-conditioning plant is 12 tons.

In the residential class there were 28 installations, compared with 13 in all years previous. F. G. Bishoff, a local merchant, was so pleased with the air-conditioning system in his office that he included a system in the new home he built this spring. Air conditioning will be a feature of the real estate development which Mr. Bishoff is sponsoring near his home.

Active in promoting air-conditioning sales in this territory has been Duquesne Light Co., with two monthly publications, "Industrial Electric Topics" and "Commercial Electric Topics," in which stories on recent installations are reported to executives and merchants.

Direct mail pieces carrying general information on the advantages of air conditioning was sent to a select merchant-executive prospect list. Return postal cards were included, and when these were returned, the utility's field men contacted the prospects, supplying approximate installation and operating cost figures and other desired information.

The utility was also active in the affairs of the Pittsburgh Air Conditioning Bureau, and assisted in the exhibit conducted by the bureau during June. Through the bureau, direct mail of both the utility and manufacturers was released on a pre-arranged schedule, preventing overlapping and insuring maximum results.

### NEW ORLEANS

In New Orleans, installations rose to 64, almost double the 33 reported during 1934, and well over two-thirds of the total of 85 reported in operation at the start of the year.

Most signal gain in the city's installations was in private homes, 23 such jobs being reported, only one short of the total of 24 installed in all years before 1935. In another field, private offices, the total for all previous years, 10, was equalled. Small stores installed 10 systems, one more than had been in operation in all previous years.

Largest installation, in point of size, was the Roosevelt hotel job, which totaled 1,275 hp.

Several new fields were entered this year. Two telephone exchanges were conditioned, for a total of 6 hp., a seed storage business, 8½ hp., a court room, 55 hp., a funeral home, 17½ hp., and five railroad car service places, 380 hp. Also new on the list is a night club installation, totaling 24 hp.

## York Engineers Declare Comfort Cooling Will Not Cause Water Shortage

By John T. Schaefer, York Ice Machinery Corp.

QUIET without foundation are the opinions occasionally expressed in daily newspapers that our municipal water supply systems are facing a shortage due to the increasing number of air-conditioning systems being installed throughout the country, declare engineers of the York Ice Machinery Corp. who have been making a study of the question.

It is true, they say, that practically all air-conditioning systems require some water, but this is no real cause for alarm because the refrigeration and air-conditioning industry has developed special apparatus which can be installed along with an air-conditioning system for the express purpose of minimizing its water consumption.

The fact of the matter is that considerable quantities of water must be circulated through all large refrigerating systems whether used for air conditioning, ice making, dairies, meat packing plants, or the many other applications of refrigeration. Being relatively expensive in many communities, water has engaged the attention of refrigerating engineers ever since refrigeration first came to be applied to modern industry on a large scale.

These men found long ago that it is possible to reclaim, so to speak, the water from a refrigerating system and use it over again.

This "reclaiming" of water from a refrigerating system is accomplished by a piece of equipment called a cooling tower, of which there are several well developed types available for both large and small plants.

A cooling tower is simply a piece of mechanical equipment which cools

water by evaporation to the outside air. Hot water from the refrigeration condenser is pumped through the cooling tower and back, with its temperature considerably lowered, to the condenser where it performs its work over again in the system.

This process goes on continually during the operation of the refrigerating plant. Due to the fact that a small percentage of water is evaporated, some provision is always made to replace it. However, this "make-up water" is negligible, and even in the case of very large refrigerating plants would never over-tax a municipal water supply system.

In one of the newspaper reports a water consumption of 4,500 gallons per day is mentioned for a small residential air-conditioning system capable of cooling one large or two small rooms.

If such a water consumption were reasonable for such a small system it would truly be an alarming matter, both to the owner in paying for it, and to the local water company which might eventually have thousands of such installations on its lines.

However, this figure is obviously an exaggeration. A small well-designed air-conditioning system of this size, even without a cooling tower, should require less than 1,000 gallons per day under average conditions, and this figure could be reduced by 95 per cent through the use of one of the new cooling towers designed especially for such applications.

A good many purchasers of air conditioning have gone into the question of water costs with and without a cooling tower in their localities, and found that a cooling tower pays for

itself in two or three seasons of operation, York engineers declare. In other cases, purchasers in localities with a lower water rate elected to do without a cooling tower, at least for the time being, because its advantages were less marked.

If the water requirements of air-conditioning systems should ever produce a problem in certain communities, it would be quite possible for the authorities to specify the use of cooling towers on all existing air-conditioning systems. These could be installed at a nominal cost for each system.

Because of the many benefits which air conditioning brings to humanity, and the powerful aid to recovery which it has been for many progressive business enterprises such as railroads, retail stores, restaurants, and theaters, it is apparent that the "bugaboo" of water shortage should not be considered a hindrance to further application of this new science.

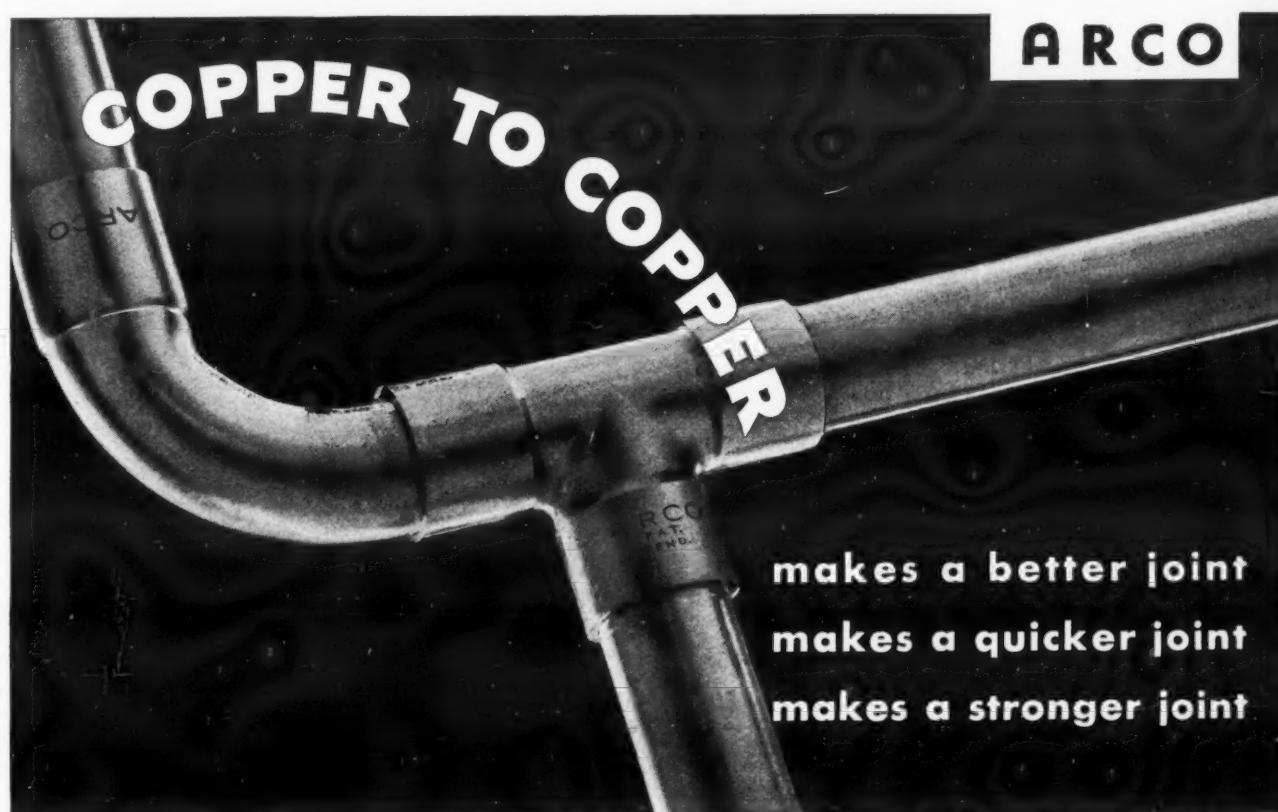
## Park Ave. Apartments Have Air Conditioning

NEW YORK CITY—The 12-story apartment house at 400 Park Ave. here, will be the world's largest completely air-conditioned apartment house, claim Walker & Gillette, architects who filed plans for the remodeling of the structure with the Building Department here recently.

Room controls of the year-round air-conditioning system will enable apartment occupants to obtain cool weather in summer, and warm weather in winter.

Besides the addition of air conditioning, alterations in the present setup will provide more apartments than the building now contains. First floor is being remodeled so that stores may be installed, the architects state.

With reconstruction being started immediately, the building will be ready for occupancy by spring.



## Air Conditioning Equipment needs the advantages of the Arco Copper to Copper Connection

### NON-POROUS

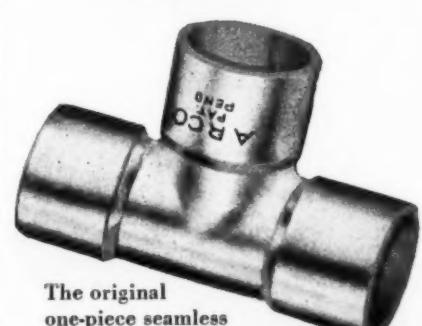
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### \* LEAKPROOF

### SAFE WITH ANY REFRIGERANT

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### AIR CONDITIONING REQUIREMENT



The original one-piece seamless

### WROUGHT COPPER TEE

• In all sizes from  $\frac{1}{4}$ " up, with many reduction sizes on the branch.



THE copper to copper connection made with Arco Full Flow Wrought Copper Fittings is the logical joint for all air conditioning and refrigeration equipment. Many manufacturers have already adopted it as standard. It overcomes every objection; meets every requirement.

Being pure wrought copper, Arco Fittings are non-porous. They react like the pipe to every chemical and physical condition. They take less applied heat to make the joint. This joint is proof against

leak or vibration. It will handle any refrigerant without loss. It is stronger than the pipe itself. Under tests, the pipe will go before the joint will leak.

Write today for complete details on Arco Full Flow Fittings. Find out, too, how their low cost, with what they save in time, gives you an extra advantage.

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## Digest of Title Retaining and Personal Property Lien Instruments

This digest is intended to be an aid for Industrial Financing. There are special statutes covering railroad equipment, rolling stock, live stock, motor vehicles, airplanes, boats and other personal property. Reproduced by special permission. Copyright, 1935. Revised and brought up-to-date since publication of similar data in the News. The attorneys who prepared this tabulation wish to emphasize that it is not a substitute for legal advice.

State	Instrument recommended for use	File or record copy or original	Time limit within which to file or record	Necessary signatures	Acknowledgement or affidavit of whom required	*Fixtures Common Law (C. L.) or Statute	With whom is contract filed or recorded?	Place where contract is filed or recorded?	Is necessary to record? If so, when?
Alabama	Cond. Sales Contract	Record Original	Immediately	Buyer	None	C. L.	Probate Judge	County where the buyer resides and where the goods are delivered and remain	No
Arizona	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (except fixtures)	Statute	County Recorder	County where goods are first kept for use by buyer	Yes; within 60 days of 3 years thereafter
Arkansas	Cond. Sales Contract	None Required	Unnecessary	Buyer	None	C. L.	None Required	None Required	No
California	Cond. Sales Contract	None Required (except for live stock and mining machinery)	Unnecessary	Buyer	None (except for live stock and mining machinery)	C. L.	None Required	None Required	Yes; after 3 years over \$2,000 value
Colorado	Chattel Mortgage	File Original	Immediately	Buyer (mortgagor)	Acknowledgement by Buyer	C. L.	Office of the County Clerk and Recorder	In the county where the goods are situated	Yes; after 3 years over \$2,000 value
Connecticut	Cond. Sales Contract	File Original—certain property excepted	Immediately	Buyer	Acknowledgement by Buyer	Statute	Town Clerk	Town where the buyer resides	Yes; within 30 days of 3 years thereafter
Delaware	Cond. Sales Contract	File Copy	10 days from execution	Buyer	None (except fixtures)	Statute	Recorder of Deeds	County where the goods are first kept for use by buyer; fixtures where realty is situated	Yes; within 30 days of 3 years thereafter
D. of C.	Cond. Sales Contract	File Original—if contract is over \$100	Immediately	Buyer and Seller	Acknowledgement by Buyer	C. L.	Recorder of Deeds	District of Columbia	No
Florida	Cond. Sales Contract	Record Original	Immediately	Buyer and seller, each in presence of two witnesses	Seller (may be proved by acknowledgement of one witness in lieu)	C. L.	Clerk of Circuit Court	County where buyer resides and where goods are located	Yes; every 7 years
Georgia	Cond. Sales Contract	Record Original	Within 30 days from making of contract	Buyer in presence of one witness	Acknowledgement by Buyer	Statute	Clerk of Superior Court	County where buyer resides; if non-resident county or state then also where goods are located	No
Idaho	Cond. Sales Contract	File Original	Immediately	Buyer	Acknowledgement by Buyer	C. L.	County Recorder	County where goods are located	No
Illinois	Cond. Sales Contract	None Required	Unnecessary	Buyer	None	C. L.	None Required	None Required	No
Indiana	Cond. Sales Contract—must not contain confession of judgment	None Required (except fixtures)	Unnecessary	Buyer	None	Statute	None Required (fixtures—County Recorder)	None Required (except fixtures where goods are located)	No
Iowa	Cond. Sales Contract	File Copy	Immediately	Buyer and Seller	Acknowledgement by Seller or Buyer	C. L.	County Recorder	Where buyer resides; non-resident of state then where property located	Yes; after 3 years after debt due
Kansas	Cond. Sales Contract	File Copy	Immediately	Buyer	None	C. L.	Register of Deeds	County where goods are to be kept	No
Kentucky	Chattel Mortgage	File Original	Immediately	Buyer (mortgagor) and 2 witnesses if buyer does not acknowledge	Acknowledgement by Buyer (before a Notary Public and 2 witnesses)	C. L.	County Clerk	County where property is located	No; good for 15 years of debt
Louisiana	Chattel Mortgage (Special La. Form)	Record Original or Certified Copy	Immediately	Buyer (mortgagor) before Notary and 2 witnesses	Acknowledgement by Buyer (before a Notary Public and 2 witnesses)	Peculiar rule, "Immovable by destination"	Recorder of mortgages	Parish where mortgagor resides and also where goods are located	Yes; every 5 years
Maine	Cond. Sales Contract	Record Original	Immediately	Buyer	None (except in unorganized place)	C. L.	City, Town, or Plantation Clerk	In City, Town, or plantation where buyer resides; if buyer is a non-resident where seller resides, with registry of deeds	No
Maryland	Cond. Sales Contract must use eight point type	Record Original	Immediately	Buyer	None	C. L.	County Clerk except Baltimore with Clerk of Superior Court	Where Buyer Resides	No
Mass.	Cond. Sales Contract	None Required (except fixtures)	Unnecessary (unless attached to realty statement to be filed within 10 days from delivery of equipment)	Buyer	None (see Fixtures)	Statute	None required; fixture contracts to be filed with County Clerk	None required except fixtures to be recorded in County where realty is located	No
Michigan	Chattel Mortgage	File Copy	Immediately	Buyer (mortgagor)	Affidavit by Buyer	Statute	Register of Deeds	County where buyer resides and also where property is located	Yes; every 3 years from expiration of 3 years thereafter
Minnesota	Cond. Sales Contract	File Copy (where city has population of over 50,000, otherwise file original)	Immediately	Buyer	None	C. L.	Register of Deeds or Town or City Clerk	County where property is located and buyer resides	No
Mississippi	Cond. Sales Contract	Record Original (after buyer is in possession for 3 years)	Within 3 years after buyer has had possession	Buyer	Acknowledgement by Buyer (or proved by acknowledgement of 1 witness taken before Notary Public)	C. L.	Clerk of the Chancery Court	County where property remains	Yes; within 6 months
Missouri	Chattel Mortgage	File Original or true copy	Immediately	Buyer (mortgagor)	None	C. L.	County Recorder except St. Louis City Recorder	County where buyer resides. If non-resident of State then county where property is located	No provision—advise every 5 years
Montana	Cond. Sales Contract	File Original	Immediately	Buyer	None	C. L.	County Clerk and Recorder	County where buyer resides and property is located	No
Nebraska	Cond. Sales Contract	File Copy	Immediately	Buyer	Affidavit by Seller	C. L.	County Clerk	County where buyer resides	Yes; 5 years—30 days expansion date thereafter
Nevada	Cond. Sales Contract	None Required	Unnecessary	Buyer	None	C. L.	None Required	None Required	No
New Hampshire	Cond. Sales Contract	Record Original	Within 20 days after delivery of property	Buyer	Affidavit by both Seller and Buyer	C. L.	Town Clerk	Town where buyer resides. If buyer is not within State, where seller resides. If neither buyer nor seller reside within State where goods are located	No
New Jersey	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (see Fixtures)	Statute	County Clerk or Register of Deeds	County where property is first kept for use	Yes; within 30 days of 3 years thereafter
New Mexico	Cond. Sales Contract—must not contain confession of judgment	File Copy	Immediately	Buyer and Seller	Acknowledgements by Buyer and Seller	C. L.	County Clerk	County where property is located	No; original filing 6 years after date of debt
New York	Cond. Sales Contract	File Copy	Immediately	Buyer	None (see Fixtures)	Statute	Town or city clerk except county seats with register, if no register then county clerk, New York City—4 counties with register, Richmond County with county clerk	Where buyer resides; if buyer non-resident, then where property located. Fixtures where realty located	Yes; within 30 days of 3 years thereafter
N. Carolina	Cond. Sales Contract	Record Original or duplicate original in Mecklenburg County	Immediately	Buyer and 1 witness unless acknowledged	Acknowledgement by Buyer (or signature may be proved by acknowledgement of 1 or more witnesses)	C. L.	Clerk of Superior Court	County where buyer resides; if non-resident of state then county where property is located	No; good for 15 years of debt
N. Dakota	Cond. Sales Contract	File Original (with receipt attached showing buyer has received true copy from seller)	Immediately	Buyer and 2 subscribing witnesses unless acknowledged	Acknowledgement by Buyer or may be signed before 2 witnesses in lieu	C. L.	Register of Deeds	County where goods are located	Yes; every 3 years preceding expiration of 3 years
Ohio	Chattel Mortgage	File Original or True Copy with affidavit	Immediately	Buyer	Affidavit by Seller	C. L.	County Recorder	County where buyer resides; county where goods are located, if buyer non-resident of county or state	Yes; within 30 days of 3 years
Oklahoma	Cond. Sales Contract	File Original	Immediately	Buyer	None	C. L.	County Clerk	County where goods are located	Yes; every 3 years preceding expiration of 3 years
Oregon	Cond. Sales Contract	None Required (except for fixtures)	Unnecessary	Buyer	None	Statute	None required except fixtures in county where realty is situated	None Required	No
Penn.	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (see Fixtures)	Statute	Frothomotary	County where goods are kept	Yes; within 30 days of 3 years thereafter
Rhode Is.	Cond. Sales Contract	None Required	Unnecessary	Buyer	None	Statute	None Required	None Required	No
S. Carolina	Cond. Sales Contract	Record Original or File Copy	Immediately	Buyer and 1 witness	Affidavit by Witness	C. L.	Clerk of Court except Charleston, Greenville, Spartanburg, with Register. In Richland County send contract to County Treasurer	County where buyer resides; if non-resident of state where property is located	Yes; within 30 days of 3 years thereafter
S. Dakota	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (see Fixtures)	Statute	Register of Deeds	County where property is located	No
Tennessee	Cond. Sales Contract	None Required	Unnecessary	Buyer	None	C. L.	None Required	None Required	No
Texas	Chattel Mortgage	File Original	Immediately	Buyer (mortgagor)	None (if original filed)	Statute	County Clerk	County where property is situated or where buyer resides	Yes; within 3 months 6 years before maturity
Utah	Cond. Sales Contract	None Required (except for live stock)	Unnecessary	Buyer	None	C. L.	None Required	None Required	No
Vermont	Cond. Sales Contract	Record Original	Within 30 days after property is delivered	Buyer	None	C. L.	Town or city clerk; if buyer resides in unorganized place, with county clerk	County or town where buyer resides; if buyer non-resident of state, then county or town where seller resides	No
Virginia	Cond. Sales Contract—must use ten-point type on contract and pica type clause forbidding oral waivers or modification	File Original	Within 5 days after property is delivered	Buyer and Seller	None	C. L.	In Richmond—Clerk of Chancery Court; elsewhere either with Clerk of Circuit Court, Husting Court, or Clerk of Corporation Court	County where property is situated	Yes; within 30 days of 3 years and 6 years before maturity
Washington	Cond. Sales Contract	File Original	Within 10 days after buyer takes possession	Buyer and Seller	None	C. L.	County Auditor	County where buyer resides	No
West Va.	Chattel Mortgage to secure deficiency	File Original	Within 10 days from execution	Buyer (mortgagor)	Acknowledgement and Affidavit by Buyer (Mortgagor)	C. L.	County Auditor	County where property is situated	Yes; 2 years after
Wisconsin	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (see Fixtures)	Statute	Clerk of County Court	County where goods are kept	Yes; within 30 days of 3 years and ever thereafter
Wyoming	Cond. Sales Contract	File Copy	Within 10 days from making of contract	Buyer	None (see Fixtures)	Statute	Register of Deeds	County where goods are kept	Yes; within 30 days of 3 years and years thereafter
		File Copy	Immediately	Buyer	Affidavit by Seller	C. L.	County Clerk	County where property is located	Yes; every 2 years preceding expiration

Notice—The information contained herein has been compiled for the Commercial Credit Co. by Dills, Muecke & Schelker, attorneys, and was obtained from sources and authorities which they believe are reliable but is not guaranteed. It is suggested that users examine the statutes and decisions as to the legal status of contracts and instruments used in any instance where there is a doubt as to sufficient and

adequate protection. The requirements set forth herein are subject to legislative change from time to time. \*The decisions on fixtures are conflicting even in the same state, because they involve a mixed question of law and fact. No definite rule can be laid down. Decisions and statutes should be studied

with respect to the specific kind of fixtures. It is recommended that mortgagees and other lien holders of realty. Where both buyer and seller sign, both acknowledgement and stamp taxes on promissory notes and other documents.

†There are stamp taxes on promissory notes and other documents.

# Instrument Used in the United States for Retail Instalment Sales

planes, boats not mentioned in this resume. Prepared for COMMERCIAL CREDIT CO., Baltimore, Md., by Dills, Muecke & Schelkner, attorneys, 100 East 42nd St., New York City. His tabulation wish it understood that the continual stream of legal decisions which affect financing make it practically impossible ever to have the record entirely up-to-date for all states.

d?	b necessary to refile? If so, when?	Has landlord a lien when contract has been filed or recorded?	What are the filing or recording fees?	Legal rate of interest	*Limit allowed by contract	Are attorney's fees stipulated for, on the face of the note, collectible; if so, how much?	Must seller elect between his remedies?	If so, will the election of one remedy bar the election of any other remedy available to the seller?	Are the contracts of a married woman in business as a trader enforceable at law as if unmarried?	
the	No	No	15¢ per 100 words; 15¢ tax on each \$100 and a license tax of 50¢ on each \$500. Release 25¢	6%	8%	Yes—reasonable	Yes	Action for purchase price acts as a bar to retaking of equipment and vice versa. However, parties may stipulate for recovery of price upon retaking, sale, and crediting proceeds on note, if not inconsistent.	Yes—if over 18 years. May not become surety for husband. Husband must join in real estate conveyances.	
buyer	Within 60 days preceding expansion of 3 years from filing yearly thereafter	No	75¢; refiling 75¢; release 20¢	6%	8%	Yes—reasonable	No	Seller may sue for purchase price or retake goods or retake and sell goods and sue for deficiency	Yes—if over 21 years	
ed	No	No	None Required	6%	10%	No	Yes	Action for purchase price acts as a bar to retaking of equipment and vice versa	Yes—if over 18 years	
se by	Yes; mitigate does not exceed \$2,500—5 years over \$20,000—10 years; retail good for 1 year only	No	None Required	7%	10%	Yes—reasonable	Yes	Action for purchase price acts as a bar to retaking of equipment and vice versa. However, suing for installments which are due, where the whole price is not yet due, is not an election. Foreclosure and suit for deficiency allowed	Yes—if over 18 years	
goods	No	No	50¢; refiling 50¢; release 50¢	6%	No Limit	Yes—reasonable	No	Foreclosure is proper remedy. Seller should retake within 6 months after maturity of debt	Yes—if over 21 years	
ounted	every 7 years	No	\$1.00; release 40¢	6%	12%	Yes—reasonable	No	Action for purchase price with action for Trover may be joined in one action; does not apply if seller brings one action; a retaking by seller is bar to suit for purchase price and vice versa	Yes—if over 21 years	
are	No	No	\$1.00; refiling \$1.00; release 25¢	6%	6%	Yes—not exceeding 5%	No	Seller may sue for purchase price or retake goods or retake and sell goods and sue for deficiency	Yes—if over 21 years	
then	Within 30 days preceding expansion of 3 years; yearly thereafter	No	\$1.00; release 50¢	6%	8%	Yes—reasonable	Yes	Action for purchase price acts as a bar to retaking of equipment and vice versa. Seller may maintain bill in equity to subject goods to satisfaction for the price and for deficiency after sales	Yes—if over 21 years	
here	No	No	Filing 10¢; recording 25¢ for 1st 100 words and 12 1/2¢ for each succeeding 100 words; release same fees.	8%	10%	Yes—reasonable	Yes	Action for purchase price is bar to retaking of equipment. However, seller may sue in equity for foreclosure and sue for deficiency	Yes—if over 21 years	
ides;	No	No	20¢ per 100 words plus 10¢ for indexing; counties of population over 50,000—15¢ per 100 words; 15¢ for discharge.	7%	8%	Yes—if defendant is notified in writing 10 days before suit is brought	Yes	Action to retake equipment is a bar to suit for purchase price; however, a purchase money attachment on the goods does not bar a subsequent action for Trover. Foreclosure allowed; clause allowing seller to retake, sell and sue for balance upheld	Yes—if over 21 years. May not become surety or pledge or transfer her own property as security for husband's debts	
then	No	No	50¢; release 25¢	6%	8%	Yes—reasonable	Yes	Action for purchase price is bar to retaking of equipment and vice versa. However if contract so provides, seller allowed to retake, resell the goods, and sue for deficiency	Yes—if over 18 years. May not become surety for another.	
in	No	No	None Required	5%	7%	Yes—reasonable	No	Seller may retake the goods, sue for conversion or sue for purchase price	Yes—if over 18 years	
here	No	No	None Required (25¢ for fixture contracts)	6%	8%	Yes—reasonable	Yes	Seller may retake, resell and sue for deficiency	Yes—if over 21 years. Husband must join in real estate conveyances	
ides;	Years after maturity of deb	No	25¢; refiling 25¢; release 25¢	5%	7%	Yes—reasonable	No	Seller may retake goods or sue for purchase price. An action for purchase price is bar to retaking and vice versa	Yes—marriage emancipates infants	
then	No	No	25¢; refiling 25¢; release 25¢	6%	10%	No	No	Seller may retake the goods and sue for purchase price or retake the goods and in action of replevin recover usable value of the goods from commencement of action until time of trial	Yes—if over 18 years	
in	No; if mortgage is filed before equipment is placed on premises; otherwise landlord has lien for 1 year's rent	No	\$1.00; marginal release 25¢; satisfaction 50¢	6%	6%	No	No	Foreclosure proper remedy	Yes—if over 21 years	
here	Yes; every 5 years	Yes	50¢; refiling 50¢; release 25¢	5%	8%	Yes—reasonable	Yes	Seller may sue for dissolution of sale or retake and sue for deficiency	Yes—if over 21 years	
ides;	No	No	250 words or less, 50¢ to 75¢—Clerks of cities and towns and registers of deeds \$1.00 for 1st 500 words; 25¢ for each additional 100 words; release 25¢	6%	No Limit	No—fixed by statute	No	Seller may sue for purchase price and retake equipment or foreclose	Yes—if over 21 years. Marriage emancipates minors	
then	Yes; landlord's waiver necessary. In Baltimore City landlord's waiver un- necessary except for equip- ment located in office bldgs.	No	In Baltimore \$1.00; recording memorandum at length \$2.75 per 1,000 words, minimum fee of \$1.50; elsewhere 1 1/4¢ for each 10 words	6%	6%	Yes—reasonable	Yes	Action for purchase price is bar to retaking of equipment and vice versa	Yes—if over 21 years	
in	No	No	None required; fixture statements \$1.00 plus 45¢ for each additional page plus 10¢ for indexing each additional name over 2	6%	No Limit Under \$1,000, 8% plus \$5 expenses	Yes—reasonable	Yes	Action for purchase price is bar to retaking of equipment and vice versa	Yes—if over 21 years and if certificate setting forth her name, husband's name, nature of business and place of business is filed in clerk's office of city or town where business is located	
here	Yes; every 3 years within 90 days from expiration date; two renewals only	No	25¢; release 25¢	5%	7%	No	Yes	Foreclosure is proper remedy	Yes—if over 21 years. Cannot become ex- partner of husband or surety except for her sole benefit	
ides;	No	No	25¢ Registers of Deeds; 10¢ City Clerks; release 25¢	6%	8%	Yes—reasonable	Yes	Action for purchase price is bar to retaking of equipment and vice versa. However foreclosure is allowed in alternative	Yes—if over 18 years	
then	Yes; within 6 months after 6 yrs	No	5¢ each paper—recording 25¢; recording and in- dexing per 100 words, 15¢	6%	8%	Yes—10% allowed	No	Seller may retake the goods and also sue for unpaid purchase price	Yes—if over 21 years	
in	No	No	10¢; recording 10¢ per 100 words; release 10¢	6%	8%	Yes—10% allowed	Yes	Foreclosure proper remedy	Yes—if over 21 years	
here	No	No	50¢; release 25¢	6%	10%	Yes—reasonable	Yes	Seller may retake the property or sue for purchase price. One is a bar to the other. However, if so stipulated in the contract the seller may retake the goods, resell and sue for deficiency	Yes—if over 18 years and by application to the court and publication of notice of intention, may become sole trader	
ides;	Yes; 5 years—30 days before expansion date and yearly thereafter	No	25¢	6%	9%	No	Yes	An action for the purchase price bars a subsequent retaking of the equipment	Yes—marriage emancipates infants	
then	No	No	None Required	7%	12%	Yes—but not in replevin	Not decided	Seller's remedies are governed by terms of contract	Yes—if over 18 years. Must sue and be sued with husband unless separated or authorized by district court to transact business in own name	
in	No	No	30¢ each page of 224 words; release 50¢	6%	No Limit	No decisions	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years. Cannot become partner or surety for husband	
here	No	No	\$1.00; release 20¢	6%	6%	No decisions	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
ides;	No	No	25¢ release—no fee	6%	10%	Yes—reasonable	Yes	Seller may retake the goods or sue on the contract for the purchase price. Seller may sue for deficiency if contract so provides	Yes—if over 21 years	
then	No	No	New York City, \$1.25—50¢ additional against realty; 25¢ for receipt; elsewhere varies from 25¢ to \$1.00; release 50¢ plus 25¢ for each additional name indexed.	6%	6%	Yes 15% allowed	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 18 years. Must sue and be sued with husband unless separated or authorized by district court to transact business in own name	
in	No; good for 15 years after maturity of debt	No	Fees vary locally	6%	6%	No	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years. Cannot become partner or surety for husband	
here	Yes; every 3 years within 90 days preceding expiration date; 3 renewals only	No	25¢; refiling 25¢; release—no fee	4%	7%	No	Yes	Seller may retake the goods or sue for purchase price. An election of one remedy bars the other. Court may permit buyer to make default good within reasonable time	Yes—if over 18 years	
ides;	Yes; within 30 days prior to 3 yrs	No	6¢ for filing; recording 10¢ per 100 words	6%	8%	No	No	Foreclosure is proper remedy. Do not retake without legal process	Yes—if over 21 years	
then	Yes; every 3 years within 30 days preceding expiration date	No	25¢; release—no fee	6%	10%	Yes—10% allowed	Yes	Seller may retake the goods, resell and sue for difference between the aggregate amount received and the agreed price or may sue for damages and retain a lien for the amount of judgment	Yes—if over 18 years	
in	No	No	None Required	6%	10%	Yes—must read reasonable and not based on percentage	Yes	An election to retake the goods acts as a bar to the recovery of purchase price and vice versa. Deficiency may not be recovered unless contract expressly provides for it	Yes—marriage emancipates infants	
here	Yes; within 30 days preceding expansion of 3 years and yearly thereafter	Yes	50¢; release 30¢	6%	6%	Yes—reasonable	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
ides;	No	No	None Required	6%	30%	No decisions	Not decided	Seller may retake the property; sue for purchase price	Yes—if over 21 years	
then	No	No	Fees vary locally	6%	7%	Yes—reasonable —10% allowed	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
in	No	No	15¢; release 25¢	6%	8%	No	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 18 years	
here	No	No	None Required	6%	6%	Yes—10% allowed	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
ides;	Yes; unless mortgage filed before equipment placed on premises	No	25¢; release 25¢	6%	10%	Yes—reasonable	Yes	Seller must foreclose and may retake only if provided in contract	Yes—if declared feme sole by district court on application joined in by husband and over 21 years	
then	No	No	None Required	6%	10%	Yes—reasonable	Yes	A retaking of the goods is an absolute election and he may not thereafter sue for the balance of the price due	Yes—marriage emancipates infants	
in	No	No	50¢ for 250 words; over 250 words, 20¢ per folio; release 20¢ per folio; minimum charge 50¢	6%	6%	Yes—if more than bare agreement shown	No	Seller may foreclose or make attachment in suit for purchase price	Yes—if over 21 years	
here	No	No	25¢; release 25¢	6%	6%	Yes—reasonable	No	Rights are determined by the court	Yes—if over 21 years	
ides;	No	No	50¢; release 25¢	6%	12%	Yes—as fixed by con- tract	Yes	Seller may retake the goods or sue for purchase price. One is bar to the other	Yes—if over 21 years or if married to a person who is over 21 years	
then	No; if filed before equip- ment is placed on premises or if landlord has actual notice of seller's rights	No	50¢; release 35¢	6%	6%	No	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
in	Yes; within 30 days preceding expansion of 3 years and yearly thereafter	No	50¢; release 25¢	6%	10%	Yes—reasonable	No	Seller may retake the goods, resell and sue for deficiency	Yes—if over 21 years	
here	Yes; every 2 years within 30 days preceding expiration	No	25¢	7%	10%	Yes—reasonable	No decisions	Seller may retake the goods or sue for purchase price	Yes—common law governs age of majority	

It is recommended that waivers be obtained from both acknowledgements are required.

Household refrigerators, furnishings or utensils or motor vehicles are not affected by these requirements.  
Provision for confession of judgment is unlawful, and judgment rendered in another State upon such provision is unenforceable.

Tax on contracts.

\*Usury no defense to corporations in Delaware, Illinois, Indiana, Michigan, New Jersey, New York, Pennsylvania, Virginia, West Virginia, Wisconsin, and Florida, no corporations organized under 1923 act. Usury statutes and penalties vary in different states.

## ELECTRIC REFRIGERATION NEWS

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## Fatal Misconception

A CENTURY hence, when historians are delineating and evaluating the record of the remarkable times in which we are now living, we have the feeling that they will point toward an antagonistic misconception of commerce and industry as the catastrophic flaw in the New Deal philosophy, and that laws and measures resulting from this misconception will be considered the major—and ultimately self-destructive—blunders of the Roosevelt Administration.

The executive branch of the present United States government, with its multitudinous, heterogeneous, and awkwardly overlapping bureaucracy, is as queer a mixture of pragmatic politicians and altruistic dreamers as any country has probably ever seen. Working side-by-side are men like Postmaster General Farley (as calculating a dispenser of patronage as any up-from-the-wards politicians who ever managed a spoils system) and Harry Hopkins (a trained social worker who hopes for a better state of being for all the so-called "underprivileged" classes).

Both groups are having themselves a grand time—at the expense of the nation's producers, who must not only foot the wildly extravagant bills, but must suffer insults, indignities, and serious hamstringing at the same time. Both groups apparently bear malice toward business and business men *per se*.

It would undoubtedly be unfair to accuse President Roosevelt of insincerity in his feeling that business needs to be curbed and throttled, that the men who are responsible for making the wheels go 'round are avaricious monsters whose greed is the reason for a chicken not being in every pot. Nor is it safe to presume that the college professors and social workers associated with him do not also carry honest convictions of the same nature.

But regardless of the altruistic intents and purposes of Mr. Roosevelt and his Brain Trustees, any student of history must surely realize how important a free, active, and untrammelled commerce has been in the development and maintenance of all the things the Brain Trustees themselves are seeking for "humanity." When we examine the situation closely we are inclined to suspect that the would-be reformers of our present economic and social system are really being made the dupes of the same old political schemers who have always barnacled the Ship of State.

We cannot present, in this limited space, a case history of the relation between unfettered commerce and well-governed, free peoples. But we can quote a summation of this relation, as made by Will Durant, who was himself a Columbia professor, and who by his writings, has done more to bring the teachings of philosophy and history to masses of people than any other man since the invention of printing. Writes Mr. Durant:

"Trade thrives on freedom and dies of legislation; it distrusts despotism, lashes at all barriers, and becomes in its growth a powerful

influence for liberty.... The bond between commerce and civilization went beyond the provision of liberty; the sinews of culture were nourished by the stream of mercantile and industrial wealth.... In the great ages of mankind wealth and art were not enemies, they were mother and child.... Our civilization is threatened not by slow decay, but by rapid destruction, through the extinction of those liberties of mind, movement and enterprise that have been the essence and spirit and driving energy of our modern life."

If we follow the Biblical reasoning that "by their fruits shall ye know them," we are forced to assume that the New Dealers are attempting to take commerce and industry—the livelihood of the American people—away from business men, and put them into the hands of politicians. Whereupon the American public is entitled to ask: "Since when have the politicians proved themselves to be trustworthy guardians of our lives, liberty, and happiness? Has not the alliance of politicians with the underworld made possible the phenomenon of gangdom? Have not waste, corruption, and inefficiency attended practically every enterprise politicians have attempted to operate? Should not politicians clean their own house before attempting to 'reform' responsible business men?"

Many discerning observers have found evidence pointing toward the belief that the college professors and social workers who are running us into debt so fast and so heavily in the name of humanity and better living conditions are in reality the pious "front" behind which crafty politicians are playing the same old game of mulcting the public for personal power, profit, and aggrandizement. In this scheme of things, the New Dealers are the dupes, and the American people the suckers. And if the New Dealers don't get wise to themselves, the public will soon get wise to the whole situation. After which all that will remain of the New Deal will be a headache and terrifically high taxes for the next several decades.

Two homely old aphorisms and one modern slang injunction might profitably be considered by the well-meaning gentlemen of the New Deal: "Don't bite the hand that's feeding you; don't kill the goose that laid the golden eggs; don't be a sucker."

## WHAT OTHERS SAY

### Shall America Be Backward?

CITY dwellers of the United States are so dependent on the magic of the electric push button that life to them is scarcely imaginable without it. This "genie of the lamp" not only brings light to them but for many, preserves and cooks their food, washes and irons their clothes, carries their messages, forces water through intricate city plumbing systems, turns the wheels of their factories, and serves them night and day in innumerable other ways.

This is not true in most rural areas. More than 85 per cent of our farmers lack such a magic servant. Many of them do even the hardest drudgery as their fathers and their grandfathers did before them—with their hands. They use oil lamps or candles for light, they cook their food by oil or wood fire, they draw water from a well or carry it from a spring. Their lives are difficult, their comforts few and they have little time for pleasure.

It is startling to many, who have always thought of the United States as a thoroughly progressive nation, to learn that we lag far behind many countries in modernizing our agricultural districts.

Leading European nations surpass us in supplying electric power, the modernizing force, to rural areas.

More than 80 per cent of all French rural communities now have electric service available. France expects to provide electricity for her entire rural population within the next five years, and has already made a nation-wide reduction in electric rates.

England has appointed a Parliamentary committee on rural electrification and electric rate reduction.

The Ontario Hydro-Electric System of Canada recently celebrated its twenty-eighth profitable year by supplying as a novel advertising "stunt," free current to rural inhabitants who operate electric washing machines, radios, and electric household pumps.

Over 40 per cent of the farms in Sweden are electrified, while less than 15 per cent in the United States have electric service.

In Japan more than nine homes in 10 are electrified. In the United States but one out of 10 farm homes has electricity, bringing our general average below Japan's.

At the present time it is impossible that electricity be brought to serve every farmer in our country. The undertaking is too vast to be done at once, but progress is being made and the President and the Congress realize the urgency of bringing electric power to the farms.—Hoosier Farmer.

## LETTERS

### He Wants a List - -

J. J. Koepsell Co.  
Wholesale Distributors  
1029 S. Eighth St., Sheboygan, Wis.  
Editor:

As we are entering into the refrigeration parts field, we are indeed very much interested in covering as much ground as at all possible during the first year of our new endeavor, and comb the territory very thoroughly.

Kindly assist us in furnishing us with a list of recognized and legitimate refrigeration service men and dealers of electric and domestic refrigeration, which we would certainly appreciate, if you can do for us. Should there be any cost in the compiling of this list, we shall be pleased to reimburse you for the cost.

You may also include the upper state of Michigan in this list.

N. H. GUTKNECHT,  
Sales Department

### - They Want to Be Listed

Richardson's Independent Service  
Registered Refrigeration Technician  
Bronson, Minn.

Publisher:

One of the later issues of your paper to which I am a subscriber states you are making up a list of service stations for the use of manufacturers.

If convenient kindly include this station.

G. I. RICHARDSON,  
Proprietor

P. O. Box 17, Vicksburg, Miss.

Publisher:

Responding to your invitation—appearing in the Dec. 11 issue of ELECTRIC REFRIGERATION News—to independent service men to register for the listing of their names in the catalogue mailing service being prepared by the Business News Publishing Co., may I present my name for listing.

It seems to me that this catalog mailing service should be of great benefit to both manufacturer, distributor, and serviceman, and I think you should be highly complimented for the valuable service you are rendering.

I am a subscriber to your wonderful paper, ELECTRIC REFRIGERATION News, and may I say that I believe it to be the best all-around publication of any trade or industrial paper published.

May I take this opportunity to wish for you and the entire personnel of Business News Publishing Co. a most merry and joyous Christmas and a healthful, happy, and prosperous New Year.

JAMES O. BOBBS.

1056 E. 23rd St., Brooklyn

Editor:

Kindly add my name to the mailing service you are forming. For your information I am a subscriber to your paper.

HARRY ROTHSTEIN.

### Tiny Refrigerator

J. F. Kane Sales Service  
11 West 42nd St., New York City

Editor:

Does your DIRECTORY list manufacturers who are producing refrigerating units, small enough to fit a container 12 in. deep by 7 in. wide, or approximately that size?

We do not require a temperature below 35° F. but must keep size small and cost of motor, compressor, and condenser down to a fairly low figure. We are, therefore, interested in prices.

Could you give us some advice on this, in case the problem is a special one? We shall appreciate the courtesy.

J. F. KANE.

### Wants Portable Conditioner

The Windermere  
West End Ave. at 92nd St.  
New York City

Editor:

Please advise if you can give me the names and addresses of manufacturers who plan to have ready for distribution a portable, electric, self-contained air-conditioning cooling unit at a moderate selling price and if possible is so designed as not to require attaching to any water service.

ALBERT PFEIFER.

"The REFRIGERATION News is very interesting and contains helpful information and tips in this line. I appreciate the service of the News and assure you my cooperation for it."—Joe Aigner, 556 West 140th St., New York, N. Y.

"Please send me a bill for ELECTRIC REFRIGERATION News for one year. Have been without my ELECTRIC REFRIGERATION News for a year or more and have concluded it is an absolute necessity in the refrigeration business."—William Handley, 4106 10th St., Tampa, Fla.

"Enclosed find check for your MASTER SERVICE MANUAL. Keep up the good work; I find your News wonderful."—E. J. Knowles, 262 Maine St., Keansburg, N. J.

### Cuban Developments

Servicio General de Refrigeracion  
Experts in Electric Refrigeration  
San Jose Num. 97  
Havana, Cuba.

Editor:

We wish to thank you for the information that you are supplying us of manufacturers devoting their activities to the manufacture of steel coils for refrigeration.

We have taken good note of the contents of your favor and we are very glad to advise you that we are subscribers to your valuable magazine since February, 1935, and when we sent you our subscription blank we included in it REFRIGERATION AND AIR CONDITIONING DIRECTORY and REFRIGERATION AND AIR CONDITIONING MARKET DATA, both of them actually in our hands.

For your information and in case that you may like to include our name in your next edition of REFRIGERATION DIRECTORY, we would like to give you some information and data regarding our organization.

The writer was "service manager" for a period of four years for Walter Cendoya Co., Frigidaire distributor in Cuba. During this time I was examined for the work of Frigidaire commercial man as of 1933, obtaining their certificate No. 98 dated April 28, 1933, with classification of 96% per cent.

When Walter Cendoya Co. decided to go out of business, we went into business for ourselves and established our actual organization devoted to repair and give service to electric refrigerators since June, 1933.

We are actually doing all installation of commercial equipments and service to Westinghouse Electric Co. of Cuba by contract. We have also done installations of commercial equipments to General Electric Co. of Cuba, to whom we are not actually giving service due to our contract with the Westinghouse Electric Co. of Cuba, but we are making coils, selling parts and accessories and giving service. We are maintaining close relations with all distributors of refrigeration equipment in Cuba.

We are well related with Melchior, Armstrong, Dessa Co., of New York City, of whom we are buying part of the materials that we use.

We are selling parts and accessories to almost all the service men in Cuba. Besides we have under our control the Department of Installation and Service of Helados Guarina, S. A., the ice cream factory of biggest importance in Cuba. We have installed two Kold-Hold in two of their trucks of this important concern.

A. ALVAREZ, Manager

### Air Conditioning Paper?

Mathews Furniture Co.  
26 S. Court St., Montgomery, Ala.

Editor:

## MASTER SERVICE MANUAL

### Chapter 9—Service

## Service Complaints & Operations On Dry Expansion Systems

By K. M. Newcum

### 89. Complaints on Type '3A' Dry Expansion Systems (Continued)

#### Complaint No. 11: Compressor Runs Continuously. Noise Inside of Cabinet

Continuous operation would suggest that insufficient evaporation is taking place. The noise inside the cabinet would indicate that the expansion valve is leaking excessively, and liquid refrigerant is pouring through, or that the system is short of refrigerant and there is a steady hissing noise at the valve.

Note carefully the operating pressures. If the back pressure is high and the head pressure is higher than normal, and the suction line cold or frosted, it would indicate that the expansion valve is holding open.

Flush the expansion valve. If flushing does not correct the condition to lower the back pressure to normal, change the adjustment. If the valve does not respond to flushing or adjustment, it must be worn out and should be replaced.

If the head pressure is lower than normal and the back pressure normal or lower than normal, the hissing noise is probably due to a shortage of refrigerant. In such a case, the evaporator would be partially or fully defrosted. Refrigerant should be added until the hissing noise ceases and the pressures return to normal and the evaporator frosts normally.

#### Complaint No. 12: Refrigerant Leaks when Compressor Is Idle

This complaint would indicate that the leak is on the low pressure side of the system. It is known that a dry expansion system employing the automatic expansion valve operates at a definite setback pressure. During the off cycle, and as the evaporator warms up, the low side pressure increases.

It is this increased back pressure that results in this type of complaint.

With the combination gauge set installed and the compressor idle, the pressure from the high side should be by-passed to the low side to 35 lbs.

All parts of the low side should be carefully tested for leaks.

A common source of such complaints is a seal leak. Other joints, connections, and parts of the low side should also be tested and any necessary repairs or replacements made.

After repairs have been made, carefully check the system for air that might have been drawn in during the

operation with the leak on the low pressure side. This is especially important with  $\text{SO}_2$  and isobutane systems that normally operate below 0 lb. gauge.

#### Complaint No. 13: Food Freezing in the Refrigerator

This complaint would indicate that the thermostat is keeping the compressor in operation excessively, causing too much evaporation to take place.

Check the contact between the bulb and evaporator. If the contact is poor or broken, the thermostat is controlling the refrigerator temperature, in place of the cold evaporator.

The thermostat may be set too cold. Check setting with a thermometer placed in contact with the bulb and make necessary adjustments.

The control contacts may be stuck closed from arcing.

A ground in the control circuit or control proper would keep the motor operating even though the contacts were open.

#### Complaint No. 14: Set Refrigerator Colder

The evaporator and refrigerator temperature should be checked very carefully with an accurate thermometer. Due note should be made as to whether or not the ice cubes are frozen.

Most complaints of this nature are caused by some other condition as given in previous complaints.

All possible causes of too high a refrigerator temperature should be checked and corrected before changing the control adjustment for if the refrigerator has been in satisfactory service for a length of time, it isn't reasonable to assume that the control adjustments changed of their own accord.

However, if after correcting all other causes of high refrigerator temperature, the temperature remains higher than normal, the control should be adjusted colder. If the control does not respond to adjustment, it should be replaced.

#### Complaint No. 15: Machine Will Not Run

With the control in the off position, turn the flywheel by hand to make sure the compressor is free.

Operate the control by hand and if the motor does not make an attempt to run, check either the fuses and/or overload relay. If the fuses are good, and/or if the relay is reset, check all the electrical connections with a test lamp to see that current is being supplied right up to the motor leads.

If current is going into the motor,

check the brushes and commutator. The commutator may be coated with dirt, preventing contact, or the brushes may not be touching the commutator.

In the case of a capacitor motor, if the current is going into the capacitor and the motor does not attempt to run, the motor must be replaced.

If again on the repulsion-induction motor, the brushes are making good contact with the commutator and the motor still does not run, with the belt removed, rotate the motor by hand. If by turning the armature slightly, the motor starts, it would indicate a dead spot in the commutator.

After checking all these conditions, if the motor still remains dead, it should be replaced.

#### Complaint No. 16: Refrigerator Not Cold Enough

Check and proceed as in complaint No. 14.

#### Complaint No. 17: Will Not Freeze Ice

Check the evaporator sleeve temperature and note the frost condition of the evaporator.

If the evaporator is not frosting, it is due to one or more of the conditions given in the previous complaints. The necessary adjustments or repairs should be made to result in normal operation.

In many cases where a complaint of this nature is registered and the sleeve temperature and evaporator temperature is satisfactory, the user is demanding or expecting ice to freeze in too short a time.

Very often users have been misled or misinformed as to the actual time required for ice cube freezing.

This complaint is frequent after defrosting, and especially during hot weather when the demand for ice cubes is highest, and the system is taxed to its capacity in maintaining a cold refrigerator against hot food, water, and outside temperatures.

Reason with the user that the prime purpose of the refrigerator is to preserve food stuffs. Ice cube freezing is secondary and more or less an accessory.

#### Complaint No. 18: Lines Frosting, Water Dripping on Floor

This complaint would suggest that refrigeration is taking place outside the refrigerator.

If it is found that the suction line is frosted, check the operating back pressure and evaporator sleeve temperature. While it is only reasonable to believe that only a leaky expansion valve or one that is adjusted for too high a back pressure might cause this complaint, it is also possible that the thermostat is stuck closed, or set far too cold, causing the line to frost out of the refrigerator.

In the normal temperature range, the frost should cover the entire evaporator and possibly one or two inches of the suction line inside the refrigerator. Should this temperature range be reduced extremely, the frost line, even with a properly adjusted expansion valve, will creep out of the refrigerator on the suction line.

If the sleeve and refrigerator temperature is satisfactory and the operating back pressure is higher than normal, the expansion valve should be flushed as given in paragraph 66, before attempting to change the adjustment.

If flushing does not reduce the back pressure, try adjusting the valve for a lower back pressure. The adjustment should be changed only slightly and due note made of the pressure difference on the compound gauge.

If the valve responds to the adjustment, the frost line should be checked to see that it comes just inside the refrigerator.

If the valve does not respond to adjustment, and especially after flushing, it should be replaced.

It is possible for a partially clogged liquid line filter near the liquid receiver to act as a throttle valve at that point, resulting in a frosted or sweated liquid line. In such a case, the filter should be replaced or cleaned.

#### Complaint No. 19: Refrigerator Motor Causing Radio Interference

This complaint is fully covered in complaint No. 19, type "1A" system, and also in the chapter on motors.

#### Complaint No. 20: Motor Running Hot

This complaint would be the same on any type system, and is completely covered in complaint No. 20 under type "1A" system.

### 90. Operations on Type '3A' Systems

The following service operations are given with the combination gauge set installed and correctly connected to valves 1 and 2, as shown in illustration 150.

#### Service Operation No. 1: Evacuating Liquid Line, Evaporator, And Suction Line

As type "3A" system is not equipped with shut-off service valves at the

(Continued on Page 12, Column 1)

### Summary of Instalments Published Previously

A summary of previous instalments of the Master Service Manual follows:

#### Chapter 1—Theory of Refrigeration (April 10).

#### Chapter 2—Principles of Mechanical Refrigeration (April 17).

#### Chapter 3—Common Refrigerants (April 24).

#### Chapter 4—Condensing Units.

May 1—Description of compressor parts.

May 8—Stuffing box seals, flywheels, and direct-connected units.

May 29—Rotary compressors.

June 5—Care and servicing of shut-off valves and gaskets.

June 12—Condensers.

June 19—Liquid receivers.

#### Chapter 5—Evaporators.

June 26—Flooded evaporators with low side float valve.

July 3—High side float valves and flooded evaporators.

July 10—Automatic expansion valves.

July 17—Automatic expansion valves—continued.

July 24—Thermostatic expansion valves.

#### Chapter 6—Controls.

July 31—Low pressure controls.

Aug. 7—Low pressure controls—continued.

Aug. 14—Thermostatic controls.

Aug. 21—Thermostatic controls—continued.

#### Chapter 7—Motors.

Aug. 28—Repulsion start-induction run motors.

Sept. 4—Repulsion start-induction run motors (continued) and capacitor motors.

Sept. 11—Direct current motors and belts.

#### Chapter 8—Installation.

Sept. 18—Installation of refrigerators.

Sept. 25—Correct use of fittings in making joints.

#### Chapter 9—Service.

Oct. 16—Classification of systems and use of combination gauge set.

Oct. 23—Service complaints and remedies on Type 1A flooded systems.

Oct. 30—Service complaints and remedies on Type 1A flooded systems—continued.

Nov. 6—Service operations on Type 1A flooded systems.

Nov. 13—Service operations on Type 1A flooded systems—continued.

Nov. 20—Service operations on Type 1A flooded systems—concluded.

Nov. 27—Service complaints and operations on Type 1B and 1C flooded systems.

Dec. 4—Service operations on Type 1D and complaints on Type 2A systems.

Dec. 11—Service operations on Type 2A flooded systems.

Dec. 18—Service operations on Type 2A flooded systems (continued) and complaints on Type 3A dry-expansion systems.

Dec. 25—Service complaints on Type 3A dry expansion systems (continued) and operations on 3A systems.

NOTICE: This concludes the chapters of the Master Service Manual as published serially in Electric Refrigeration News. The complete Manual, in book form, to be ready for delivery in January, will contain much additional information on the servicing of special types of household refrigeration systems, particularly orphan makes. See book order form and rates in combination with subscription to the News on page 15.



**W**HENEVER I see a nice white finish on an ice or electric refrigerator, I get busy.

First I inhale a big chestful of whatever harmful gas I'm able to find in the atmosphere. Then I blow it over the surface of the cabinet and start yellowing the finish.

If that doesn't work, I create what scientists call a photogenic action, which causes the finish to darken when light shines on it, somewhat like a photographic plate.

I also like to get in a packing case with a refrigerator because then if there's any gas leak before the box is installed, I can spread it all over the surface and yellow up the average finish in no time.

I guarantee to discolor every finish except Bradley-Vrooman's PORCELOID—that stuff's too blamed tough for me. It always remains as gleaming white as the day it was put on, no matter what I do to it. For the love o' Mike, don't use it or you'll spoil my fun.

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## Service Operations On Dry Expansion Type Systems

(Continued from Page 11, Column 3) evaporator, the liquid line, evaporator and suction line are all evacuated at one time as follows:

- Close valve 3.
- Operate compressor until a 20-in. vacuum is drawn on the compound gauge. Stop compressor.
- By-pass through gauge set valves 6 and 7 to increase low side pressure to 0 lb.
- At this point close valves 6 and 7, and the liquid line, expansion valve, evaporator suction line, or any parts thereof may be disconnected for repair or replacement.

### Service Operation No. 2: Purging Air from Liquid Line

Often where the liquid line only has been disconnected for only a short period, it may be purged separately, as follows:

- With liquid line connection to expansion valve loosened, crack slightly valve 3.
- The pressure from the liquid receiver will force the air from liquid line.
- When refrigerant is noticed escaping at loosened connection, close valve 3.
- Tighten connection to expansion valve.

### Service Operation No. 3: Purging Air from Liquid Line, Evaporator, and Suction Line

- With compressor idle, close valve 1.
- Loosen suction line connection at valve 1.
- Crack valve 3, and pressure from receiver will purge air from liquid line, evaporator, and suction line out through loosened connection at valve 1.
- When refrigerant is noticed escaping at loosened connection, close valve 3 and immediately tighten connection.

### Service Operation No. 4: Pumping Air from Liquid Line, Evaporator, and Suction Line

In many cases it is considered advisable to pump the air from the low side of the system after it has been exposed to the atmosphere. This may be done as follows:

- Close valve 2.
- Connect purge line to service connection 8, and run to neutralizing solution or outside if SO<sub>2</sub>. If isobutane, Freon, or methyl chloride, this is not considered necessary.
- Open valve 7, and pressure in cylinder head will escape through purge line. Close valve 7. Remove purge line.
- Disconnect gauge-set line from connection on valve 2. Connect purge line to this connection on valve 2.
- Run open end of purge line into glass bottle.
- With valve 3 closed and valve 1 open, start compressor and operate at short intervals until highest possible vacuum is reached on compound gauge. This should be around 25 in.
- At this point no more air or refrigerant is being exhausted out the purge line. With the compressor still in operation, disconnect purge line and reinstall line to gauge set.
- Open valve 2 near back seat.

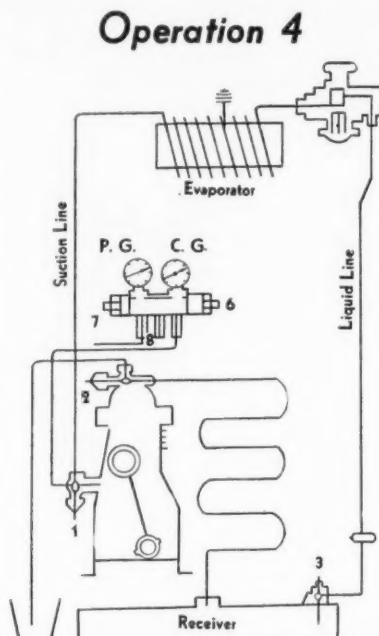


Fig. 155 shows valve connections made in pumping air from liquid line, evaporator, and suction line.

- By-pass through gauge set to increase low side pressure above 0 lb. for testing for leaks.
- Close valves 6 and 7.

Note: The purpose of placing the open end of the purge line in the glass bottle is to catch any oil that might be pumped over during the running period of the compressor. New oil in the exact amount of that collected in the bottle should be added to the compressor before leaving the job.

### Service Operation No. 5: Testing for Leaks

- Methods of detecting leaks of various refrigerants are given in chapter 2.
- All joints and connections should be tested for leaks as soon after replacing or repairing as possible.
- Pressures equal to, or above, highest normal operating pressure must exist in the part of the system

### Operation 6

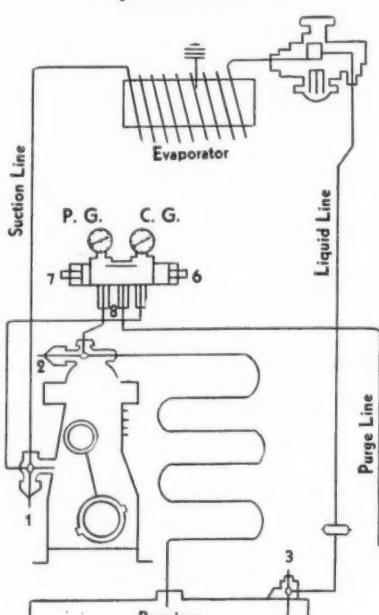


Fig. 156 illustrates setup of equipment for purging air from condenser.

being tested at the time the test is made.

### Service Operation No. 6: Purging Air from Condenser

- Refer to the effect of air in the system and purging instructions for common refrigerants on page 67 of the INTRODUCTION.
- Stop compressor and allow condenser to cool to room temperature.
- Attach purging line to service connection 8.
- With compressor idle, crack valve 7 and purge slowly for several minutes.

e. Observe pressure drop registered on pressure gauge.  
f. When purging is completed, close valve 7 and remove purging line.

### Service Operation No. 7: Adding Refrigerant to Low Side

- Attach charging line from refrigerant cylinder to service connection 8. Leave cylinder standing upright.
- Purge charging line. Test for leaks.

c. Open cylinder valve.  
d. Close valve 1.  
e. Crack valve 6. Put compressor into operation, using valve 6 as a throttle valve. For SO<sub>2</sub> and isobutane, charge at around 5 lbs. back pressure. For methyl chloride and Freon, charge at around 10 lbs. back pressure.  
f. Charge small quantities at a time. Close valve 6 and open valve 1 at

### Operation 7

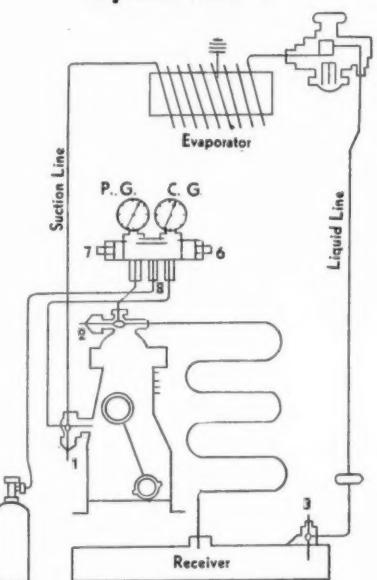


Fig. 157 shows how to add refrigerant to the low side of a dry expansion system.

regular intervals and check operating pressures and frosting of evaporator, to determine when sufficient refrigerant has been added.

g. When sufficient refrigerant has been added, close valve on refrigerant cylinder. Open valve 6. Close valve 1, and allow compressor to draw pressure from charging line and combination gauge set to 0 lb. Then close valve 6 and open valve 1.  
h. Remove charging line.

### Service Operation No. 8: Adding Oil to Compressor

- Fill a clean, dry glass vessel with 50 per cent more oil than is to be added to the system.
- Attach a 1/4-in. line to service connection 8.
- Purge oil line by cracking, then closing valve 7.
- Place open end of oil line into oil vessel, all the way to the bottom.

Service Operation No. 9:  
Changing Evaporator

a. Proceed as in operation 1 through steps a, b, c, and d.

b. At this point the evaporator may be disconnected and replaced.

c. After replacing evaporator, either purge as in operation 3 or pump air from evaporator as in operation 4.

d. Test for leaks and put system into operation.

### Operation 8

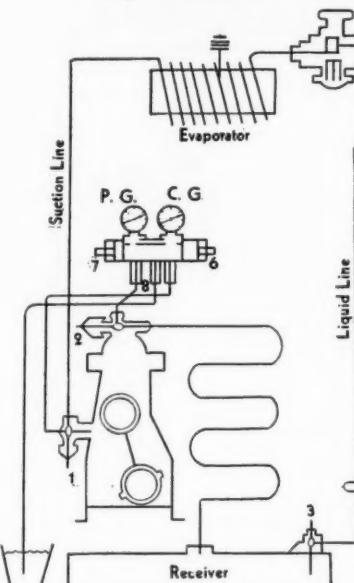


Fig. 158 demonstrates equipment connections for adding oil to compressor.

- Close valve 1 and operate compressor to around 15 in. vacuum, then stop compressor.
- Open valve 6 and oil will flow from container through gauge set into crankcase.

g. When correct amount of oil has been added, close valve 6 and open valve 1.

h. Put compressor into operation.

### Service Operation No. 10: Flushing Expansion Valve

- Close valve 3.
- Operate compressor until around 20 in. vacuum is drawn on the low side.

c. At this point the expansion valve is wide open.

d. Open valve 3 as suddenly as possible so that the liquid from the receiver will rush past the valve needle air seat to dislodge any foreign materials.

e. With valve 3 open, operate system for several minutes to see if valve returns to normal operation after flushing.

f. Repeat the flushing operation several times if necessary. If flushing does not cause the valve to seat, it must be replaced.

### Service Operation No. 11: Changing Expansion Valve

- Proceed as in changing the evaporator, operation 9. (Follow steps a, b, c, and d, in operation 1.)

b. At this point the expansion valve may be disconnected and replaced.

Note: Examine the old expansion valve in an attempt to determine why it held open, or otherwise did not function correctly.

Note especially if there is an oil film inside the valve. If not, and the internal parts are bone dry, this may be the cause of failure. Bear in mind that an expansion valve, like any other piece of mechanism, requires lubrication for long life. In a case where the old valve is dry, it is suggested that sufficient oil be added to the compressor to provide lubrication by circulation with the refrigerant to the expansion valve.

If the valve parts and especially the strainer are filled with carbonized oil, it is evidence that the system is filled with this abrasive material, which is causing all moving parts to wear excessively. By all means, in such a case, install the most highly efficient filter obtainable just ahead of the expansion valve in the liquid line, to prevent this material from reaching the valve.

Where methyl chloride, Freon, or isobutane is involved, inspect the inside of the valve for traces of moisture. If moisture is noticed, a dehydrator should be installed in the liquid line.

### Service Operation No. 12: Removing Clogged Expansion Valve Strainer

Where the expansion valve strainer is completely clogged, the liquid line cannot be evacuated as in operation 1. To prevent a loss of irritant refrigerant in the room, the operation may be done as follows:

- Close valve 3.
- If compound gauge pressure is above 0 lb., revolve flywheel by hand to reduce pressure to 0 lb.

c. If pressure is below 0 lb., by-pass through gauge set to 0 lb.

d. Install pinch-off block (see installation operation 9) on liquid line about 6 in. this side of the strainer.

e. With pinch-off block installed and tightened, remove clogged strainer.

f. Reconnect liquid line to expansion valve connection.

g. Remove pinch from line, allowing liquid trapped in liquid line to pass into low side of system.

h. Proceed to evacuate liquid line, evaporator, and suction line, as in operation 1.

i. Cut tubing just this side of pinch and reflare. Install outside filter at this point and reconnect liquid line with a new short piece of copper tubing to the expansion valve.

j. Disconnect liquid line from valve 3 and install highly efficient filter at this point. Reconect liquid line to valve 3.

k. Either purge (as in operation 3) or pump (as in operation 4) air from the liquid line, evaporator, and suction line.

l. Test all joints and connections for leaks.

m. Open valves 1 and 3 and put system into operation.

Note: The purpose of installing the filter near valve 3 is to prevent future clogging at the filter near the expansion valve. A clogged filter near valve 3 is much easier to replace, as the length of liquid line containing trapped liquid is much shorter.

### Service Operation No. 13: Changing Liquid Line Filter At Valve 3

- Close valve 3.
- Evacuate liquid line, evaporator, and suction line as in operation 1, if low side pressure is above 0 lb. gauge.

c. If system is already evacuated due to the clogged filter, and the low side pressure is below 0 lb., by-pass through gauge set to 0 lb.

d. Disconnect liquid line filter and replace. There will be a slight loss of liquid in the short piece of tubing between the filter and valve 3.

Note: If it is dangerous to allow even this small amount of liquid refrigerant to escape to the atmosphere, with compressor idle and valve 3 open, apply heat with a blow torch to the clogged filter and liquid line from filter to valve 3. When the filter and line get hot, close valve 3. This heating operation will force the liquid into the receiver, and only a small amount of gas will escape to the atmosphere when the connections are opened.

e. Either purge or pump air from liquid line, evaporator, and suction line.

f. Test for leaks.

g. Open valves 1 and 3, and put system into operation.

### Service Operation No. 14: Changing Discharge Valve

- Close valve 1 and operate compressor to about a 20-in. vacuum.
- Stop compressor and immediately close valve 2.

c. Open valves 6 and 7, allowing all the pressure from the cylinder head to by-pass into the crankcase. Usually this pressure in the cylinder head is just sufficient to break the vacuum in the crankcase, thereby making it unnecessary to lose any large quantity of refrigerant to the atmosphere.

d. If the pressure on both gauges is above 0 lb., close valves 6 and 7, as this pressure will have to be relieved to the atmosphere.

e. If the pressure in the crankcase is below 0 lb., crack valve 2 very slightly, allowing pressure to increase to 0 lb. Then close valves 2, 6, and 7.

f. Unbolt valve 2, leaving it attached to condenser line, and move it to one side.

g. Unbolt cylinder head and remove cylinder head and discharge valve. Inspect piston valve while accessible, and replace if needed.

h. Clean and oil gasket surfaces, and install new discharge valve, using (Concluded on Page 13, Column 1)

INFORMAL TALK NUMBER 30



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## Service Operations On '3A' Systems

(Concluded from Page 12, Column 5)  
new gaskets at each joint. Bolt cylinder head and discharge valve back into place.

- i. Reinstall valve 2.
- j. Uncap service connection 8 and open valve 7.
- k. Crack valve 1, and pressure from low side will purge air out through service connection 8. Close valve 7.
- l. Test for leaks with pressure from low side, admitted through valve 1. Then open valve 2 and again test for leaks.
- m. Open valve 1 and put system into operation.

### Service Operation No. 15: Changing Compressor Body

- a. Proceed as in operation 14 through steps a, b, c, d, e, and f.
- b. Unbolt valve 1, leaving it attached to the suction line.
- c. If pressure is below 0 lb., increase to 0 lb. by bypassing through gauge set.
- d. Close valve 2.
- e. Remove flywheel from shaft.
- f. Remove stuffing box seal and inspect shaft.

Note: Instruction on stuffing box seals and shafts is given in chapter 4, paragraph 55.

- g. Install new stuffing box and reinstall flywheel.
- h. By-pass pressure from cylinder head through gauge set to crankcase, and test for leaks around stuffing box.

- i. Open valves 1 and 2.
- j. Operate compressor at around 5 lbs. back pressure for at least 15 minutes.

Note: If  $\text{SO}_2$  or isobutane system and pressure goes below 5 lbs., open valves 6 and 7 just enough to keep pressure up to around 5 lbs.

- k. After running for 15 minutes, stop compressor, close valve 1, by-pass through gauge set to 35 lbs. pressure in crankcase. Test for leaks.
- l. Close valves 6 and 7, open valve 1 and put system into operation.

### Service Operation No. 16: Changing Complete Condensing Unit

- a. Proceed as in operation 1 through steps a, b, c, and d.
- b. Close valve 1.
- c. Disconnect liquid line from valve 3. Plug open end of line. Cap outlet connection on valve 3.

- d. Unbolt valve 1, leaving it attached to the suction line. Move valve 1 to one side. Close valve 2.
- e. Remove necessary electrical connections to permit removal of condensing unit.

- f. Remove present condensing unit and install new unit.
- g. Reconnect liquid line to valve 3.
- h. Bolt valve 1 to new unit.
- i. Reconnect electrical connections.
- j. Either purge (as in operation 3) or pump (as in operation 4) the air from liquid line, evaporator, and suction line.

- k. Test for leaks.
- l. Open valves 3, 2, and 1, and put system into operation.



- 1 Small volume displacement per unit of refrigeration, permitting the use of small, compact equipment.
- 2 Not corrosive to ordinary equipment.
- 3 Operates at positive pressures, even at sub-zero temperatures.
- 4 Fast cooling and quick freezing.
- 5 Gives controlled low temperatures easily and efficiently.
- 6 Thermally stable and does not decompose at any temperature existing in the refrigeration system.
- 7 Has low head pressures, adaptable to air-cooled condensers and lightweight equipment.
- 8 Economical of power.
- 9 Handled, serviced with ease.
- 10 Easy to "hold"—comparatively low leakage.
- 11 Easy to engineer—no unusual design problems.

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## Announcement

Starting in the Jan. 1, 1936, issue, the NEWS will publish in serial form "THE REFRIGERATION ENGINEERS MANUAL," a guide for the licensed operator of industrial refrigeration systems, by S. L. Potts of the Detroit Vocational Schools.

For the reader who has been studying the chapters of the MASTER SERVICE MANUAL by K. M. Newcum, completed in this issue, the new book will offer both a review of the fundamentals and an advanced course of training in refrigeration practice.

THE REFRIGERATION ENGINEERS MANUAL will cover the selection, installation, and operation of all kinds of systems for industrial application and will explain how to figure the sizes and capacities of the various units. Only elemental mathematical calculations are used and the discussions are phrased in a simple and easily understood style.

THE REFRIGERATION ENGINEERS MANUAL will give the student, as well as the operating engineer, an excellent groundwork for a thorough understanding of air conditioning, which will be presented in a similar manner later in the year.

After publication of the MANUAL serially in the NEWS it will be offered in book form about May 1, 1936.

### Service Operation No. 17: Discharging Condenser And Liquid Receiver

- a. This may be done as in operation 6, by continuing the purging until all the refrigerant has been discharged.
- b. At this point, any part of the entire system, including the condenser and liquid receiver, may be removed for repairing or replacing.

- c. If the condenser, liquid receiver, or any other part of the system has been opened to the atmosphere, the entire system should be evacuated before recharging. This is done as follows:

### Service Operation No. 18: Pumping Air from Entire System

- a. Use the same hook-up as shown in the sketch accompanying operation 4.

- b. Close valve 2.
- c. With valves 1 and 3 open, operate compressor at short intervals until highest possible vacuum is reached.
- d. At this point and with compressor still in operation, remove discharge line and reconnect line from pressure gauge to valve 2.
- e. Connect charged refrigerant cylinder to service connection 8, as in operation 7. Stop compressor.
- f. Open cylinder valve and valve 6, allowing pressure to increase above 0 lb.
- g. Open valve 2.
- h. Test for leaks.
- i. Add back to compressor any oil that was pumped into glass vessel, as in operation 8.
- j. The system is now ready to be recharged, as in operation 7.
- k. With normal pressures on the system, again test for leaks.

### Service Operation No. 19: Pumping Refrigerant from Entire System into Refrigerant Cylinder; Or Evacuating Entire System

- a. Back seat valve 2.
- b. Remove high pressure gauge line from fitting in valve 2.
- c. Connect empty refrigerant cylinder of ample capacity to fitting in valve 2.

- d. Close valve 2. Test line from valve 2 to empty refrigerant cylinder for leaks. Open cylinder valve all the way. Place cylinder, inverted, in container of iced-water.
- e. With valves 1 and 3 open, put compressor into operation.
- f. Continue to operate compressor until a high vacuum is obtained on the entire system and the receiver is warn.
- g. Close cylinder valve and immediately stop the compressor.
- h. If vacuum is to be left on the system, back seat valve 2.

### Operation 19

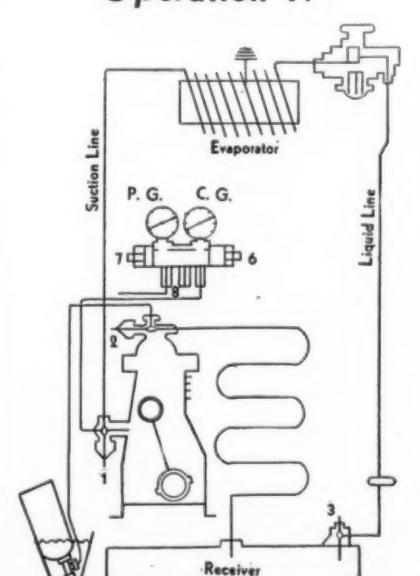


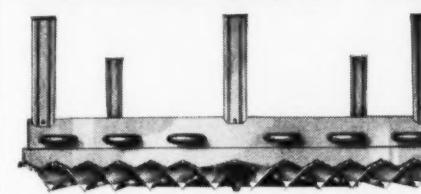
Fig. 159 demonstrates connections made for Service Operation No. 20.

## Announcement

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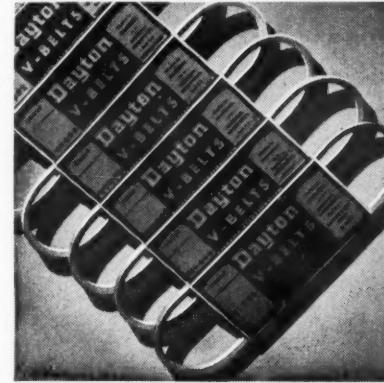
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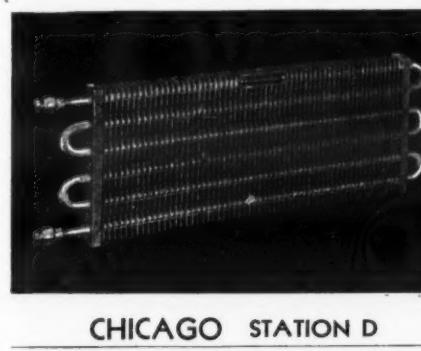
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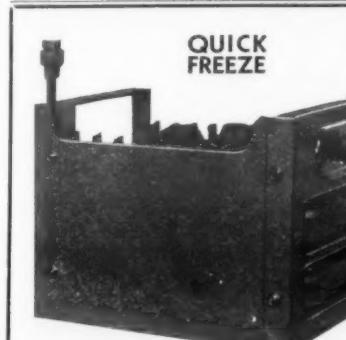


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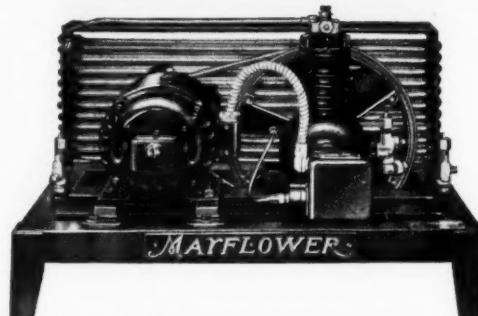
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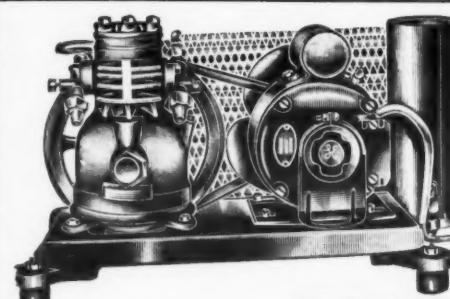
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## PATENTS

Issued Nov. 26, 1935

*(Editor's Note: Patents published in this issue are out of their proper sequence, as they should have been published in the issue of Dec. 11.)*

2,021,881. REFRIGERANT CONTROL DEVICE. Joseph Askin, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application July 21, 1934. Serial No. 736,397. 4 Claims. (Cl. 236—92.)

2,021,914. REFRIGERATOR LATCH. Martin J. Gouloose, Grand Rapids, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Original application Dec. 10, 1930. Serial No. 501,198. Divided and this application Sept. 16, 1931. Serial No. 563,122. 2 Claims. (Cl. 292—255.)

2,021,924. REFRIGERATING APPARATUS. Lawrence A. Philipp, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application April 5, 1933. Serial No. 664,523. 4 Claims. (Cl. 62—95.)

2,021,971. REFRIGERATION SYSTEM. Gordon Varney, Bradenton, Fla. Application June 6, 1931. Serial No. 542,503. 25 Claims. (Cl. 62—104.)

2,021,994. REFRIGERATING APPARATUS. William R. Hainsworth, Larchmont, N. Y., assignor, by mesne assignments, to General Motors Corp., a corporation of Delaware. Application Jan. 29, 1930. Serial No. 424,328. 3 Claims. (Cl. 62—52.)

2,021,995. HEAT EXCHANGER. Delos P. Heath, Detroit, Mich. Application April 11, 1931. Serial No. 529,334. Renewed March 22, 1935. 12 Claims. (Cl. 62—126.)

2,022,048. REFRIGERATING MEANS. Joseph M. Le Grand, Chicago, Ill. Application June 5, 1933. Serial No. 674,330. 9 Claims. (Cl. 62—116.)

2,022,133. AIR CONDITIONING SYSTEM. Clark T. Morse and Edward L. Hogan, Detroit, Mich., assignors to American Blower Corp., Detroit, Mich., a corporation of Delaware. Application April 9, 1932. Serial No. 604,142. 18 Claims. (Cl. 257—9.)

2,022,173. HEAT TRANSFER APPARATUS. Clive M. Alexander, Tulsa, Okla. Application Feb. 18, 1931. Serial No. 516,598. 10 Claims. (Cl. 257—230.)

2,022,394. HUMIDIFIER. Pierce A. Weyl, Dearborn, Mich. Application Sept. 25, 1933. Serial No. 690,891. 8 Claims. (Cl. 126—113.)

2,022,415. HUMIDIFIER. William Felderman, South Orange, N. J. Application Nov. 14, 1933. Serial No. 698,019. 3 Claims. (Cl. 261—91.)

2,022,463. AIR CONDITIONING APPARATUS. Charles P. Erschen and Richard C. Jepperting, Milwaukee, Wis., assignors to Air Conditioning Equipment Corp., Milwaukee, Wis., a corporation of Wisconsin. Application Jan. 24, 1934. Serial No. 708,096. 14 Claims. (Cl. 257—69.)

2,022,469. REFRIGERATING APPARATUS. Lloyd M. Keighley, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp., a corporation of Delaware. Application Dec. 27, 1932. Serial No. 648,940. Renewed April 10, 1934. 14 Claims. (Cl. 62—4.)

2,022,489. REFRIGERATED STORAGE Cabinet. Walter E. Carpenter, Belmar, N. J., a corporation of New Jersey. Application May 11, 1935. Serial No. 20,939. 15 Claims. (Cl. 62—126.)

2,022,523. AIR CONDITIONING APPARATUS. Edward W. Roessler, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application July 27, 1934. Serial No. 737,218. 26 Claims. (Cl. 257—9.)

2,022,583. REGULATING VALVE FOR REFRIGERATING SYSTEMS. Ralph N. Bicknell, Bangor, Me. Application Dec. 27, 1934. Serial No. 759,362. 4 Claims. (Cl. 236—99.)

2,022,583. AIR CONDITIONING APPARATUS. Edward W. Roessler, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application July 27, 1934. Serial No. 737,218. 26 Claims. (Cl. 257—9.)

2,022,615. REFRIGERATING APPARATUS. Ralph N. Bicknell, Bangor, Me. Application Dec. 27, 1934. Serial No. 759,362. 4 Claims. (Cl. 236—99.)

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2,022,615. REFRIGERATING APPARATUS. Ralph N. Bicknell, Bangor, Me. Application Dec. 27, 1934. Serial No. 759,36

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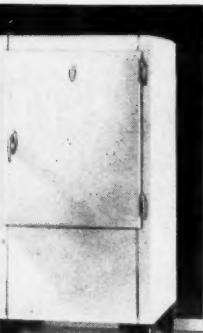
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Vol. 10—Sept. 6 to Dec. 27, 1933. (Serial Nos. 233 to 249.)  
Vol. 11—Jan. 3 to April 25, 1934. (Serial Nos. 250 to 266.)  
Vol. 12—May 2 to Aug. 29, 1934. (Serial Nos. 267 to 284.)  
Vol. 13—Sept. 5 to Dec. 26, 1934. (Serial Nos. 285 to 301.)  
Vol. 14—Jan. 2 to April 24, 1935. (Serial Nos. 302 to 318.)  
Vol. 15—May 1 to Aug. 28, 1935. (Serial Nos. 319 to 336.)

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## QUESTIONS

### Noisy Compressor

No. 2611 (Dealer, New Jersey)—"We installed a refrigeration plant consisting of a 1½-hp. high side, a brine tank and a wall coil. Our customer complains that, after the system has been shut down for a few hours and then starts again, the machine makes an awful loud noise. The condenser seems to vibrate very much and there is a loud knock for a few seconds, after which the machine runs normal. "Where could we look for trouble of this kind and how could we remedy same?"

Answer: In Chapter 9 of the MASTER SERVICE MANUAL under complaint No. 5 on Type 1A systems there is given a diagnosis of what makes a compressor noisy.

### Evaporators

No. 2612 (Dealer, Illinois)—"Kindly supply us with a list of manufacturers of household type evaporators, these evaporators to be used in conjunction with high side float valves."

Answer: A list of these manufacturers is given on page 252 of the 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY.

### Installation Trucks

No. 2613 (Dealer, Texas)—"Please put us in touch with a factory that makes hand trucks for moving electric or Electrolux refrigerators. We are in the market for two."

Answer: Contact any one of the following companies: Arcade Mfg. Co., 1212 E. Shawnee St., Freeport, Ill.; Lewis-Shepard Co., Watertown Station, Boston, Mass.; or Self Lifting Piano Truck Co., 423 N. Main St., Findlay, Ohio.

### Ice-O-Matic's Address

No. 2614 (Dealer, France)—"In the capacity of a subscriber we take the liberty of asking a favor of you:

"We should like to buy some Ice-O-Matic machines. Would it be possible for you to put us in touch with this manufacturer of compressors for methyl chloride, for we have not his address."

Answer: Ice-O-Matic refrigeration units are manufactured by the Williams Oil-O-Matic Heating Corp., Bloomington, Ill.

### Individual Sales Figures

No. 2615 (Dealer, Illinois)—"Please send me the number of units manufactured in 1934 by each of the following: Frigidaire, G-E, Kelvinator, Westinghouse, and Norge."

Answer: We regret that we cannot furnish you the information you desire, as manufacturers of household electric refrigerators do not make their individual sales figures public.

All available statistics on the electric refrigeration industry through 1934 are published in the 1935 REFRIGERATION AND AIR CONDITIONING MARKET DATA BOOK. Sales figures for the entire industry by months this year have been published in various issues of ELECTRIC REFRIGERATION NEWS, as the monthly sales totals are made available.

### Majestic Replacement

No. 2616 (Dealer, New Hampshire)—"Would you kindly advise to whom we should direct a communication with a view of obtaining quotations on replacement Majestic refrigerator units?"

Answer: Communications regarding Majestic replacement parts should be addressed to Mr. P. L. Yates, Service Manager, Grigsby-Grunow Co., 5801 Dickens Ave., Chicago, Ill.

### How to Find Manufacturers

No. 2617 (Distributor, New York)—"We are subscribers to your paper and would very much appreciate an immediate reply giving the following information which is very important to us.

"We would like to know who, if anybody, represents the following companies:

"Dayton, Ice-O-Matic, Zerozone, Buckeye."

"What we would like to know is if these people are in business, whether directly or through receiverships, or any other representation, and how it would be possible to get in touch with such company, or persons, representing any one of the above mentioned."

Answer: The manufacturers of Dayton, Zerozone, Ice-O-Matic, and Buckeye refrigerators are all still actively engaged in the manufacture of refrigerators and can be contacted at the following addresses:

Dayton Refrigeration Corp.  
20 Superior St., Buffalo, N. Y.

W. G. Von Meyer, Sales Mgr.  
Zerozone Refrigeration Co.  
1331 Holden Ave., Detroit, Mich.

M. V. Stagg, Sales Mgr.  
Ice-O-Matic Division  
Williams Oil-O-Matic Heating Corp.  
Bloomington, Ill.

Walter Switzer, President  
Domestic Industries, Inc. (Buckeye)  
282 N. Diamond St., Mansfield, Ohio.

The 1935 REFRIGERATION AND AIR CONDITIONING DIRECTORY lists all manufacturers of refrigeration and air-conditioning equipment.

### Local Ordinances

No. 2618 (Dealer, Iowa)—"If possible we would appreciate receiving copy of codes in effect in different cities such as Chicago, New York, and some other city that has a refrigeration code. If not, we would appreciate it if you could advise whom we could contact in order to get this information."

Answer: The proposed ordinance of the city of New York relating to refrigerating systems was published in the November 13 issue of ELECTRIC REFRIGERATION NEWS. Subsequent developments concerning this code as brought out at recent public hearings have been published in recent issues of ELECTRIC REFRIGERATION NEWS.

For information on the code now in effect for the city of Detroit, address H. H. Mills, Chief Safety Engineer, City Hall, Detroit, Mich.

### Counter Freezer Sales

No. 2619 (Dealer, Illinois)—"Being a subscriber to the News, I am taking the privilege to ask for some information if it is obtainable."

"I am interested in knowing the number of ice-cream counters that were sold in the United States in 1934 and 1935. The type that I am interested in are those of the brine type as I have become interested in a small ice-cream freezer that will utilize the brine in these units in making the ice cream."

Answer: We have a letter from C. S. Clark, secretary-treasurer of the Counter Freezer Association, in which he says: "There are now a total of 5,000 counter freezer units installed. During 1935 we sold over 1,000 units, which was an increase of 50 per cent over 1934."

### Data on Motors

No. 2620 (Manufacturer, Pennsylvania)—"We would like to locate a table which was published in ELECTRIC REFRIGERATION NEWS some time during 1934 tabulating the business obtained by the various leading companies on repulsion-induction motors as applied to commercial refrigeration."

"I should appreciate it very much if you could send me a copy of the issue in which that tabulation appeared or if a copy is not available, I should appreciate the pertinent data."

"In addition, whatever information you have on the following would also be appreciated:

"1. Total demand in integral hp. repulsion-induction motors for commercial refrigeration in sizes from 1 to 3 hp. or larger.

"2. Trend or tendency toward use of capacitor start-induction run or capacitor start-capacitor run (2 value capacitor) motors."

Answer: We feel that you must have confused our publication with some other data that you saw with respect to the tabulation of business obtained by leading companies on repulsion-induction motors as applied to commercial refrigeration. A close check of all of our last year's issues does not reveal any tabulation of this sort.

However, we took the matter of the two questions which you asked to an engineer for a leading manufacturer of commercial refrigeration units, keeping your name anonymous, of course. We got the following reactions:

Capacitor start-induction run or capacitor start-capacitor run motors have not found widespread acceptance up to this time because of the excessive amperage necessary in starting. Power companies in several large cities, states this engineer, won't allow such motors to be put on their lines for this reason, although at the same time other power companies are actively encouraging developments in this field.

As some indication of the total market for motors you might refer to statistics on sales of commercial refrigeration units published on page 78 of the 1935 REFRIGERATION AND AIR CONDITIONING MARKET DATA BOOK.

### Mortuary Refrigerators

No. 2621 (Distributor, Pennsylvania)—"We are interested in getting information on refrigerated receiving rooms for hospitals, funeral homes, and morgues, and will appreciate your sending a list of manufacturers who make this equipment."

Answer: The following companies may be able to fill your requirements for mortuary refrigerators:

Dry-Kold Refrigerator Co., Niles, Mich.

Fogel Refrigerator Co., 519 Bambridge St., Philadelphia, Pa.

Koch Butchers' Supply Co.

14th, Gentry & Howell Sts., No. Kansas City, Mo.

Puffer-Hubbard Mfg. Co.

2601 32nd Ave., S., Minneapolis, Minn.

Seeger Refrigerator Co.

Arcade, Wells & Whitehall Sts., St. Paul, Minn.

Weber Showcase & Fixture Co.

5700 Avalon Blvd., Los Angeles, Calif.

## CLASSIFIED

RATES: Fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Electric Refrigeration News, 5229 Cass Ave., Detroit, Mich.

### POSITIONS AVAILABLE

SALESMEN in the different commercial centers of the country to sell The Reeves Unit Cooler to Refrigeration Dealers.

This cooler has been introduced in New England during the past two years with wonderful success. It is designed solely for use in Market and Food refrigerators and is entirely different from any other cooler. Prefer men now calling on refrigeration dealers, and we offer liberal commission. If you reply give complete details and reference. The Reeves Engineering Co., Milford, Conn.

WANTED commission men calling on refrigeration and washing machine trade, to handle Goodyear V-belts for replacement. Exclusive territories still available. Liberal commission. Prefer men selling allied lines. Write in detail to Detroit Rubber Products, Inc., 35 Parsons St., Detroit, Mich.

SALESMEN WANTED. Sales engineer now traveling east or central west or preferably both, to represent us calling on jobbers. Product has instant appeal and only awaits introduction. Three of largest jobbers in U.